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FUTURE ARCHAEOLOGICAL RESEARCH IN AFGHANISTAN

WALTER A. FAIRSERVIS, JR

THE MODERN STATE of Afghanistan has been regarded by some as the new lodestone for archaeological investigations. In view of recent work in that country it seems necessary to review the archaeological picture and to attempt to set forth the problems relating to future research.

The geographical formation of Afghanistan is diverse and rugged. The Koh-i-Baba branch of the Hindu Kush tectonic system effectively fills the country almost completely, leaving only a narrow steppe-land of high fertility to the north and an interior desert basin on the south within Afghan boundaries. The Suleiman ranges form a sub-branch of the tectonic belt and contain the present-day border with the northwest frontier of Pakistan and the north of Baluchistan.

In examining the map one notes that western Afghanistan, with the exception of the Hari Rud and Seistan areas, is a desert region and that the Dasht-i-Margo and Registan are actually a continuation of the Iranian interior desert basin area. These deserts and the mountains are factors in the geographic isolation of Afghanistan. The northern belt of fertile land is a continuation of the Central Asian steppe broken by the Oxus River (Amu Darya) valley.

In spite of the ventures of some environmentalists it seems clear that there has been little or no geographic change in these geographical factors in Afghanistan over the past 7,000 years. Assuming the validity of this assumption, it is clear that the geography points out a definite pattern to the investigator of Afghanistan's archaeological remains. The pattern demonstrates five more or less precise areas favorable for the equitable welfare of past inhabitants.

1 The Afghan Turkestan Plain from Taliqan west to the Murghab River basin.
2 The valley of the Hari Rud.
3 The Seistan basin, including the Farah plain.
4 The Arghandab-Helmand River area, especially about Kandahar.
5 Certain upland valleys, ex. Kabul, Charikar, Ghorband, Bamiyan, Haibak, Ghazni.

FIG. 1. Sketch map of Afghanistan showing the five areas discussed in the text.

These areas contain balances between water, soil sources, and climate sufficient to maintain moderate populations. They are also important areas for the junction of trade routes. However, their total area is somewhat less than fifteen percent of the total area of Afghanistan.

Ethnically these areas are varied. The Turkestan plain with its elements of Turkic tribes: Uzbeg and Turkoman; the Hari Rud and Seistan areas basically inhabited by Tadjiks and Baluchi; the Kandahar area has strong Pathan affinities as do many of the upland valleys; Hazara, Mongol, Nuristani, Kirghiz are to be

found in the valleys of the central mountain ranges. Thus, the ethnography indicates the influences of Central Asia, Iran, and India, traditional homelands for many of these groups. The ethno-geographical situation varies from strong acculturation to extreme isolation. These factors are paralleled in the archaeological material.

Archaeological exploration of these areas has not been systematic, though key sites in certain regions have been explored and some reports are forthcoming. The French Archaeological Mission to Afghanistan has been the leading scientific organization in the country for thirty years. Under its leaders—Foucher, Hackin, Ghirshman, Schlumberger, etc.—considerable light has been thrown on a number of rich ancient Buddhist centers, such as Bamiyan, Haibak, Begram, and Hadda. Schlumberger's recent work at Lashkari Bazaar is yielding a wealth of data as to the life, styles, and techniques of the Ghaznavid period. Aside from the work on these Buddhist or Islamic sites, there have been adjuncts to the Mission's work in their researches at Balkh, Kunduz, Ghazni, and by Ghirshman at Nad-i-Ali in Seistan. Recently M. Casal has reported a discovery of a prehistoric site in the Kandahar area (Mundigak).

Supplementing somewhat the work of the French have been the surveys carried out by individuals with limited time and equipment. Elliott Barger's work in Afghan Turkestan, Beatrice de Cardi's trip through southern Afghanistan, and the survey trip of the First Afghan Expedition of the American Museum of Natural History in the south and central portions of the country are examples of these.

Additional data of value to the progress of Afghan archaeology have been found in the descriptions of travelers in these areas (ex. Ferrier, Tate, Fox, etc.), the recovery of coin hoards such as that at Gardez, and the gross study by collectors of antiquities appearing on the market.

The wide variance in information sources makes the clarification of the total picture somewhat difficult. Contrary to general opinion there has not been a dearth of information, so much as there has been missing a proper evaluation of the data at hand.

To meet this need a proper survey of Afghan sites of all periods has been required. With this in mind a Second Afghan Expedition from the American Museum in the season 1950-51 made a survey of sites in Afghan Turkestan (area 1), the Kandahar area (area 4), and Afghan Seistan (area 3). Survey techniques were based upon methods developed in New World archaeology for the evaluation of surface materials. Sherd representation from over seventy Afghan sites covering

both prehistoric and historic time were gathered, and these collections enabled the construction of a ceramic index for a considerable portion of this critical area.[1]

Eliminating for the present a discussion of the possibilities for the recovery of palaeolithic materials in the country and proceeding to neolithic-chalcolithic times, it is possible to delete tentatively area 5. Our present understanding of primitive economy based on the cultivation of wheat, millet, or barley tends to exclude the idea that late prehistoric man used the rather infertile, climatically difficult upland valleys of Afghanistan extensively. It can be assumed that his traces in area 5 are negligible.

Thus, it can be expected that representation of late prehistoric material is heaviest within the areas 1 through 4 outlined above.

The failure to recover prehistoric sites in the country has prevented a proper evaluation of Afghanistan's role in the neolithic-chalcolithic trait diffusion to India from the Near East. The McCown-Piggott hypothesis[2] has intimated that the red ware zones of northeastern Iran and of the Zhob area of Baluchistan were interrelated across southern Afghanistan and that therefore that region should reveal sites intermediate between the two areas. However, the American Museum survey which discovered five chalcolithic sites in the Kandahar area reveals the presence of two distinct assemblages neither of which fulfill the requirements as set forth in the original hypothesis. Excavations in two of the sites have shown that the latest assemblage, the Morasi, is at least contemporary with the Quetta B-Sadaat assemblages of northern Baluchistan and the earlier assemblage, the Said-Kala, probably equates with the Quetta A (Early) assemblage in time. Very evident in studying these assemblages is the fact that they both are rather retarded and distinctly simpler than those of Baluchistan. For example, the Said-Kala potter apparently was still making handmade wares when the Quetta potter was already achieving the sophisticated mastery of his medium which long use of the wheel had given him. The decorative technique and design content are decidedly inferior to the controlled richness of the Quetta ware. A number of apparent trade objects (seals, figurines, pottery) have been found which indicate an economic interrelationship between the two areas and confirm the evidence as to period. It

1 W. A. Fairservis, Jr, *Preliminary Report on the Prehistoric Archaeology of the Afghan-Baluchi Areas* (Novitates, American Museum of Natural History, No. 1587, 1952), pp. 6-7. Stratigraphic representation for historical periods is available for the Kandahar area, i.e., Cave of Shamshir Ghar.

2 See prefatory remarks by D. A. McCown in E. J. Ross, *A Chalcolithic Site in Northern Baluchistan* (Journal of Near Eastern Studies, vol. 5, 1946), p. 284; S. Piggot, *Dating the Hissar Sequence—the Indian Evidence* (Antiquity, vol. 17, pp. 169-182, 1943); *Prehistoric India* (Penguin Books, Harmondsworth, 1950), ch. 4.

seems apparent so far that the Kandahar area was peripheral to the more advanced Baluchistan culture centers and not an intermediary of northeastern Iran to Baluchistan.[3] In addition one must consider Seistan as a "buff ware" area extending possibly as far north as Farah. Thus, at present, it seems difficult not to place southern Afghanistan's late prehistoric assemblages in a role peripheral to the northern Baluchistan (especially Quetta) and the Seistan culture centers.[4]

It is apparent, however, that future surveys and excavation should be aimed at enlarging knowledge of the late prehistoric culture content of southern Afghanistan and, more important, to determine the situation in such areas as the Hari Rud valley and Afghan Turkestan. The Hari Rud area should reveal the red ware assemblages of northeastern Iran, but at the same time it would be of interest to know whether the southern influences have reached that far north. Afghan Turkestan's plain is rich with mounds. The American Museum survey collected at over twenty of these, but failed to locate a single prehistoric site. The rich alluvium and the loess which spreads over the plain each year bodes ill for immediate success in locating early sites. The mounds themselves are largely of this alluvium and surface artifacts are not always abundant. Examination of materials reveals that the bulk of the sites visited are Islamic, though there are indications of Buddhist levels at several places. The study of these Central Asiatic ceramics is so new that it is possible that earlier periods are represented.[5]

Considering Afghan late prehistory as a whole, then, it appears that southern Afghanistan, including Seistan and the Kandahar area, is part of the southern buff ware zone and actually (in the case of Kandahar) an area of cultural lag as compared to Baluchistan. It is probable that the Hari Rud area and Afghan Turkestan[6] are within the red ware zone of northeastern Iran and Russian Turkestan and probably contain a number of culture complexes marginal to these centers.[7]

For periods other than the prehistoric there is considerably more evidence. The French work on the Buddhist and the Islamic periods especially has revealed sufficient evidence to present an adequate idea as to their status in the country in

3 I have discussed somewhat a possible source for the Zhob ware in Kalat State in Novitates, No. 1587, American Museum of Natural History, 1952, pp. 33-34.

4 A final report on these Afghan assemblages as revealed by the Second Afghan Expedition is in preparation.

5 A ceramic index and description of the sites is planned for publication.

6 However, note comment by T. Burton Brown, *Excavations in Azerbaijan, 1948* (London, 1951), pp. 3-4, in reference to the dearth of sites around Meshed.

7 A noteworthy feature of Afghan prehistoric field research is the paucity of sites in comparison to the great number found in Iran and Baluchistan. This is perhaps an indication of the marginal nature of Afghan prehistory.

ancient times. For the Parthian and Sassanian periods material evidence is scarce, but nevertheless available, especially in Seistan.[8] Ghirshman's work at Nad-i-Ali aids in relating the archaeological data to the known history. The pre-Achaemenid, Achaemenid, and Hellenistic periods are very scantily known. The Hellenistic (Bactrian) kingdom has revealed itself largely in coins, though one or two sites (not excavated) are known (especially Kunduz). Investigations at Balkh have not yet revealed the site of the Bactrian capital. Two coins of Darius I from Afghanistan (Kandahar) are representative of the meager material evidence of the Achaemenid period in the country. Ghirshman's work at Nad-i-Ali relating to the first millennium BC, recovering ceramic types comparable to the Hissar III grey ware, is the only pre-Achaemenid evidence. Nad-i-Ali, by the way, is only one-third excavated and there remains there a tremendous potential for the stratigraphic establishment of the bronze age cultures.

In considering the evidence of the historical periods in Afghanistan one notes the distribution of certain material data in some areas and not in others. This is confirmed by the gross evidence of the coins and artifacts in the bazaars, some of the local traditions and, of course, the sites themselves. A rough chart of the areas which have period representation can be made:

Pre-Achaemenid	Area 3
Achaemenid	Area 4
Hellenistic	Area 1, 5
Buddhist (Kushan, etc.)	Area 1, 4, 5
Partho-Sassanian	Area 3
Islamic	All areas
(Note: Ghaznavid	Area 4, 5)

Evidence for the Central Asian groups such as the Saka and Epthalite is almost purely numismatic. There are famous pre-Mongol Islamic sites at such places as Bamiyan, Kunduz, Ghazni, Balkh, and perhaps Herat. Post-13th century monuments of note are located at Balkh, Herat, Kabul, Kandahar, Farah, Mazar-i-Sherif, and in the Hazarajat.

In addition to occupation sites there is an important field of study in the large number of petroglyphs which are found almost entirely along the historic trade routes. These petroglyphs are usually drawings of animals, geometric designs, or human parts. They are also found in Russian Central Asia and in Baluchistan.

8 Over thirty sites of these periods were investigated by the American Museum in Seistan.

The American Museum expedition located several hundred of these in such places as Ghazni, Kajakai, Bamiyan, and Ghorband. Recently Miss Beatrice de Cardi[9] reported some from Dilaram.

In summation of the distribution of historic period sites in the country one notes that there seems to be a gravitation of traditionally Iranian cultures, such as the Partho-Sassanian, to the south and west of Afghanistan and a clustering of Indian traits (ex. Buddhist) to the east and to the north. Though at the present time material evidence for all but the Buddhist and the Islamic period is scant, the tendencies have a logical geographic and historical basis.

There remains the vast potential of the country in palaeolithic research. The work of Paterson and De Terra in the Indus area, the recent discoveries in Iran, and the Russian endeavors at such sites as Teshik Tash point up the possible palaeolithic resources of Afghanistan. Preliminary investigations by American Museum parties along the southern fringe of the central mountains in the provinces of Farah and Kandahar, including two cave excavations and examination of the terraces of the Helmand River, failed to reveal any trace of the palaeolithic there. However, since these investigations were by no means thorough, the future may well reveal the sought-for evidences. Both Afghan Turkestan and the Hari Rud area, the latter especially, hold an excellent promise for future prehistorians. The Hari Rud valley with its limestone scarps and discernible terrace system is especially promising. The geology of the Hari Rud area needs description, and a coördinated program there should well repay the trouble. The Murghab River valley is also another potentially critical region for these researches, and to a lesser extent the valley of the Taliqan River should be of some importance.

Finally any summary of Afghan archaeology should take into consideration such almost unknown regions as the Hazarajat, Kafiristan (Nuristan), Badakhshan, and the Wakhan. Travellers' reports from these areas indicate a paucity of sites. These sites are generally reported to be defensive structures, either walls or towers, or caravanserais. Most of the descriptions indicate Islamic structures, though some are probably somewhat earlier. Inscriptional material is reported here and there, but most of these statements are based on third-hand reports. Such famous rock-cut reliefs, as the Sassanian one reported by Ferrier at Sar-i-Pul, have either disappeared or have been revealed as unfounded myth. It is certain, however, that further exploration will reveal sites of importance to research on the Buddhist period. There is also a strong potential of yet undiscovered evidences of the Mongol period. The trade stations along routes to China will be revealed and

9 B. de Cardi, *On the Borders of Pakistan: Recent Exploration* (Journal of the Royal India, Pakistan and Ceylon Society, vol. 24, pp. 52-57, 1950), p. 56.

perhaps a great deal about that phase of diffusion will be added to what is already known. However, it is hardly likely that any major site has been overlooked by either the French Mission, travellers, or the later surveys in these geographically difficult areas.

The scope of future archaeological study in Afghanistan must be far-reaching, for the problems are many: the need for the discovery of the material evidence of the palaeolithic; for future work on the late prehistoric period, especially in Afghan Turkestan and the Hari Rud areas; the pressing necessity to link the late prehistoric cultures to known historical period cultures bears directly on the Aryan invasion problem in India; the whole problem of the role of the Achaemenid and the Partho-Sassanian periods; the location of sites of the Bactrian Greek period; the recovery of the material manifestations of the early Kushan—these are but some of the major questions which have an answer in the future archaeological investigation of Afghanistan. With the solution of these major problems comes a whole retinue of large and small contributions to the history of culture. If we are to consider Central Asia not only as a bridge between East and West, but with the late A. T. Olmstead to be conscious of that vast area's role as a breeding-ground of cultural traits invaluable to the growth of civilization, then Afghanistan's archaeological problems are of first importance.

The status of modern archaeology as a science precludes the confusion, misunderstandings, "schools" of adherence, and the polemic reviews of academic man which were a feature of research in other areas because of the pioneering search for and the formulation of the principles of the science. Now that research in Afghanistan is possible it seems clear that a kind of dedication to the task is necessary. What is scientific and disciplined in field investigation is the only utility needed. Afghanistan is a difficult country in many ways. There is considerable physical hardship for the Westerner who explores its remoter areas, and there is the understandable sensitivity of a people more and more exposed to Western ideas. What is now needed is international, institutional, and individual coöperation in order to approach and solve the problems of Afghan archaeology effectively at the highest level so that the maximum contribution to all the academic and aesthetic disciplines concerned can be brought about.

American Museum of Natural History
New York, New York

INTERNAL RELATIONSHIPS OF POLYNESIAN LANGUAGES AND DIALECTS[1]

SAMUEL H. ELBERT

THE PROBLEM AND PREVIOUS STUDIES

THE OBJECTS of this study have been to develop precise techniques for the application of a glottochronological method to Polynesia, and to discover something about the interrelationship of twenty Polynesian languages or dialects.[2]

The glottochronological method of counting likenesses in basic vocabularies of related languages, and thus computing relative nearness and farness of these languages with reference to a reconstructed proto-ancestral language, was proposed and applied by Morris Swadesh in several articles.[3]

Several years previously Emory[4] had independently evolved a technique of language comparison based on the same fundamental principle, namely that over long periods of time, languages tend to change at a relatively even rate. Emory, however, based his comparisons on total vocabulary rather than on basic vocabulary. He compared vocabularies of nine Polynesian languages and determined the number of cognates shared or partially shared by the nine languages, as well as the number of cognates uniquely shared by pairs of languages. The total num-

1 Written in collaboration with William H. Davenport, Jesse W. Dykes, and Eugene Ogan. This study began as a project of a class in Pacific languages at the University of Hawaii. An abridged form of the paper was presented by Elbert on August 1, 1952, at the summer meeting of the Linguistic Society of America at Bloomington, Indiana. Appreciation is due Dr R. B. Lees of the University of Chicago for his valuable suggestions and computations. Colleagues at the University of Hawaii generously gave of suggestions and assistance: they include Paolo Comba, K. P. Emory, Edgar Knowlton, Jr, Masako Y. Lounsbury, Leonard Mason, and S. H. Riesenberg. Rare volumes and manuscripts were made accessible for study through the coöperation of Miss Margaret Titcomb and Miss Joyce Wright, librarians at the Bishop Museum and the University of Hawaii.

2 Henceforth the term "language" is used as synonymous with "language and/or dialect." A brief statement is made later in the paper as to the applicability of these two terms in Polynesia.

3 Especially Swadesh, 1950, 1951a. The term *glottochronology*, at the time of submission of this article, had not, to the authors' knowledge, appeared in print, but was obtained orally from R. B. Lees. The method has been discussed by Hockett (1952), and used by Taylor (1952) in a comparison of Carib dialects. To forestall misunderstandings, it must be stated that glottochronology is in no way intended to replace the comparative method. The compared words are judged to be similar if forms follow regular sound shifts as established by the comparative method. Comparing percentages of agreement of basic words between speech communities, then, provides a vivid means of showing time gaps between linguistic subdivisions of a family.

4 Emory, 1946.

ber of cognates was viewed as indicative of length of separation of the languages, and the uniquely shared cognates as indicators of direct contact and diffusion. Emory's conclusions agree in many ways with those of the present study.

Earlier attempts at comparing Polynesian languages with those in Melanesia were made by Churchill.[5] He endeavored to plot Polynesian migratory routes through Melanesia, using the evidence of his linguistic comparisons. His techniques lacked rigorousness: he frequently considered forms cognate if they had only slight phonetic resemblance. He ignored the phonemic status of the glottal stop, established no phoneme correspondences, and made no reconstructions.

A West-East cultural division has long been recognized in Polynesia, on the basis of other than linguistic evidence. The most complete studies are by Burrows,[6] and are based on comparisons of technology, kinship, religion, and mythology. One object of the present study is to determine whether linguistic data will substantiate Burrows' conclusions based on non-linguistic culture.

This paper contains the first table of phonemic shifts in Polynesian languages known to the writers that includes the highly significant Proto-Polynesian glottal stop, *h*, and *r*. It represents, further, a first attempt at drafting a Polynesian family tree.

THE AREA

Burrows divides Polynesia into two cultural areas, which he terms Western and Central-Marginal. Emory refers to the last division as Eastern, and this more convenient term is used in this paper (Figure 1).

The seven Western languages studied in this paper include Futunan, Uvean, Niue, Tongan, Tikopian, Ellice Islands, and Samoan. With one exception, these are spoken within a single, comparatively small geographic area. Only Tikopia, east of the Solomons, is somewhat isolated and is actually closer geographically to languages called herein "Outliers." Tikopia has been placed with the Western languages, however, because of linguistic affinities, as revealed during the course of this paper.

The eight Eastern languages studied include Easter Island, Mangarevan, Marquesan, Rarotongan, Tuamotuan, Maori of New Zealand, Hawaiian, and Tahitian.

The remaining five languages are designated Outliers, an established term for the Polynesian islands lying well outside the confines of the Polynesian area proper. These Outliers include Sikiana, Fila, Ongtong Java, Nukuoro, and Kapingamarangi.

5 Churchill, 1911.
6 Burrows, 1938.

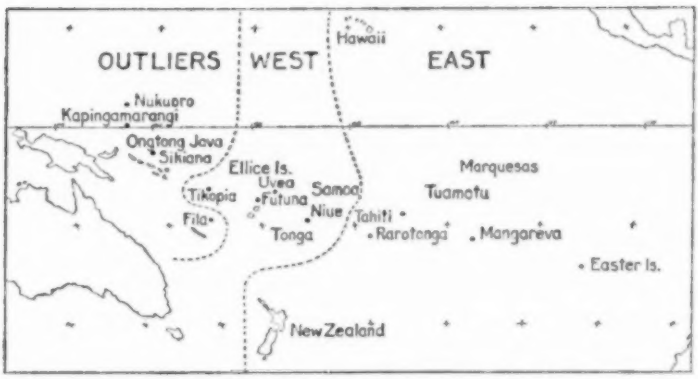


FIG. 1 Map of the Polynesian islands studied in this report, showing the three divisions: East, West, Outliers.

SOURCES OF INFORMATION

The principal sources of data were dictionaries and word lists, and some ethnographies and tale collections, as indicated below (see Bibliography for these references):

Language	*Sources*	*Approximate number of words, principal source*
Tongan	Baker, Colomb	17,000
Hawaiian	Andrews-Parker	15,000
Tuamotuan	Stimson, Stimson	14,100
Rarotongan	Savage	12,500
Samoan	Pratt	12,000
Maori	Tregear 1891	9,300
Tahitian	Andrews-Andrews, Davies	9,100
Marquesan	Dordillon	7,400
Mangarevan	Tregear 1899	6,000
Uvean	Bataillon	5,600
Futunan	Grézel	4,600
Niue	Tregear-Smith, Loeb	4,600
Easter Island	Churchill 1912	3,000
Kapingamarangi	Elbert 1948	2,200
Tikopian	Williams, Firth	2,000
Ellice Islands	Kennedy, Kennedy	?
Nukuoro	Elbert 1946	1,500
Sikiana	Capell 1935-1937	660
Ongtong Java	Lanyon-Orgill	350
Fila	Capell 1942	350

Data for the last four languages seemed too meager to warrant inclusion of the languages in the final summaries, but the counts are presented because they seem to give at least a rough approximation of linguistic position.

Native informants were consulted for Samoan, Marquesan, Tahitian, and Hawaiian.

The only important areas for which data were lacking included Pukapuka-Penrhyn-Manihiki in the northern Cook group, Tokelau just north of Samoa, and several Outliers in Melanesia, including Rennell, Bellona, and Nuguria.

THE METHOD

The method is described in some detail, so that the reader may better evaluate the results, or apply the method to other areas.

Swadesh's "basic" vocabulary of 165 words was modified and expanded in the present study to include 202 words. Such terms as awl, knife, moccasin, quiver, snake, snow, and tobacco were replaced by such Oceanic terms as banana, coconut, harbor, outrigger float, and pandanus.

The principles followed in selection of additional words for this study were semantic diversity and approximate coincidence of English and Polynesian semantic domains. No effort was made to select words that were obviously cognate.

The 202 words studied may be divided into these categories: verbs 46, nouns relating to natural environment (especially as in Polynesia) 44, adjectives 39, body parts 22, objects of material culture 13, abstract nouns 10, numerals 9, words showing grammatical relationships 7, pronouns 7, kinship terms 5.

In order that semantic domains of English and Polynesian terms might approximately coincide, many English terms had to be limited or extended. "Rotten," for example, was limited to "rotten, as breadfruit," so as to eliminate "rotten, as wood." "Smell" was extended to include "to rub noses, to kiss," as some vocabularies gave only these meanings. And it was safer to eliminate altogether such English terms as "break," as Polynesians lack a general term and use several forms with literal meanings such as to smash, split, sever, or injure.

Following is a list of the words compared:

above (not the directional), adze, alive, aloha, ancient, ashes, back (human), bad (as wicked), banana, below (not the directional), big, bird (or animal), bite (not *chew*), black (or *dark*), blood, blow (of wind), body, bone, brain, breadfruit, breast (female), brother (older of a male if distinction made), brother (younger of a male if distinction made), brother of a female, canoe, causative prefix, chief, choose, clothing, coconut tree, cold (not *hot*), count (or *read*), crazy, cry (weep),

dance, day (as distinct from daylight), die (of people), dig, direction towards speaker, dirty (but not *putrid, stinking*), dog, drink, dry, ear, eat, eye, fall, far, fat (as a human being), fear, fight (as with fists), fire, fish (noun), float (verb), flower, fly (verb), foot, fragrant, fruit, full (after eating), full (not *empty*), give (general term, including *release, let go*), go, good, grandparent (or *grandfather*), grass (or *kind of grass*), hair (body hair or feather), hand, harbor (*channel, pass,* if no word for harbor), hat, head, hear, Hibiscus tiliaceus, hit, to hold, house, I, image, intestines, itch (or *scratch*), know (as a fact), laugh, leaf, left (hand), lie (falsehood), lightning, little, liver, long, louse, male, man (human being), moon, morning, mountain, mouth (human), name, narrow, near, neck, new, night, nose, not, one, two, three, four, five, six, seven, eight, nine, ocean (directional), ocean (open sea), octopus, outrigger boom, outrigger float, paddle, pain, pandanus, pig, pillow, plant (noun, also *stick, tree*), play (as games), pound (as poi), pull (up or along, not *pluck*), push, rain, red or reddish, right (hand), road, rock (not *cliff*), root (noun), rope (or string or chain), rotten (as breadfruit), sand, sarong, shark, sharp, shoot (of gun or arrow), sick, sing, sister of a male, sit, skin, sky, sleep (or *lie down*), smell (or *to rub noses* or *kiss*), smoke (noun), smooth, speak (and *language*), spider, spit, squeeze, stand, star, stomach, straight, to string (as leis, or *to sew*), strong, suck (as water), sugar cane, sweet, sweet potato, swim, swollen, taboo, tail (of animal), taro, that (far from addressee if distinction made), the, they (plural), thick, thin (as a board), think, throw, tongue, tooth, turn over, twist, voice, vomit, want, war, water (fresh), wave (sea), we (plural, exclusive), we (plural, inclusive), wet, white, wide, wind, wing, woman, work (verb), year, yellow, you (singular), you (dual), you (plural), your (singular, *o* form, single possessed object if distinction made).

Efforts were made to obtain equivalents for these words in the twenty languages under survey. Frequently one English word had quite a number of Polynesian equivalents. For example, six Proto-Polynesian words for "dance" were obtained.[7] Thus, although the number of English words is 202, the number of Polynesian words actually compared was a great deal larger. After preliminary listings had been completed, with a separate card for each word, each source was again checked for possible cognates of forms listed in other languages. Since only a few dictionaries had adequate English- or French-Polynesian inventories, a systematic search for cognates in the Polynesian sections of the dictionaries was necessary. Occasionally the native term in some language was never found, as, for example, a Tuamotuan translation of English "to push." But Taumotuan cognates for the fifteen terms found in other languages were all sought, with negative results (a laborious process, as the Tuamotuan dictionary was available only in microfilm); accordingly Tuamotuan was listed as *not* sharing cognates with each of the fifteen words in the

7 A term was reconstructed as Proto-Polynesian if cognates were discovered in two or more languages, at least one of which was Western.

other languages, even though an actual Tuamotuan translation of English "push" was not found.

The compilations were made on large cross-ruled work sheets. The 202 English basic terms were listed vertically, and language-pairs horizontally. The first entry, *above*, was checked for Futunan-Uvean, Futunan-Niue, Futunan-Tongan, etc. Then it was checked for Uvean-Niue, Uvean-Tongan, etc. (See Table 2.) Each English entry was thus checked for 190 language-pairs. The comparisons were checked as "cognate," "not cognate," or "term missing." In the last event, the word total was lowered. Maori, for example, had no equivalents for such tropic plants as banana, breadfruit, coconut, or pandanus.

This method, based on comparing *all* the available equivalents of an English term, is called herein the "multiple-cognate" method.

A second, and infinitely less laborious, counting method was later applied to certain languages for which informants or personal knowledge were available, namely for Samoan, Marquesan, Tahitian, Hawaiian, and Kapingamarangi. This method consisted in comparing only *one* term for each language, the one the informant felt to be in most common use. Obsolete and rare words were thus ruled out. This method is called in this study the "single-cognate" method. It can not be used by one relying exclusively on dictionaries.

Finally the number of cognates for each language pair was tabulated. These totals were divided by the number of terms compared, to obtain the percentages of vocabulary agreement. For example, Mangarevan and Tongan shared 99 cognates out of 201 basic words compared, and thus had 49.2 percent agreement of basic vocabulary (Table 2).

In the list of basic terms, only a relatively small proportion afford direct reflection of morphology. It was therefore decided to make a brief examination and comparison of morphology, and see whether the results of vocabulary comparisons bore any similarity to the morphological situation.

Finally a family tree was drafted based primarily on percentages of shared vocabulary, but with some consideration of varying phonemic and morphologic systems.

CRITERIA FOR WORD COMPARISONS

Criteria used in evaluation of comparisons are discussed under these headings: phonemic shifts, and departures from these shifts that may be attributed to operation of phonetic or grammatical processes.

Phonemic shifts. Polynesian phonology is a field awaiting study by modern methods. Thus far, partial phonemic analyses have been made of Hawaiian

by Helene Newbrand and of Kapingamarangi by Elbert. Definitive comparative studies must await preparation of phonemic analyses of the other languages. Data at present are particularly meager for the four Outliers named above (Nukuoro, Sikiana, Ongtong Java, and Fila), and hence these languages are not included in the final family tree. Phonemic analyses of the other languages may not produce lists of phonemes differing from those listed in Table 1. The abundance of minimal pairs facilitates phonemic analysis. Some phonemicization has been done in the course of the present work. Positional allophones listed in some dictionaries were interpreted phonemically. For instance, the phone *t* before *i* is spelled "j" in Tongan and "s" in Uvean. Allophones of many of the phonemes are not known, but of little importance in a study such as this made on the phonemic level. Known allophones have for this reason not been listed in Table 1.

The selection of reconstructed Proto-Polynesian phonemes in Table 1 has followed Dempwolff,[8] except in three respects:

(1) Dempwolff's nonphonemic "weak" on-glides and off-glides are not recorded in the dictionaries and are ignored in this study.

(2) **r* reconstructed by the present authors represents an *l* missing in Tongan and sometimes missing in Niue, but present in the other languages. The reconstruction has been tentatively in the shape of **r* on the basis of its occurrence in languages such as Fijian, Trukese, Malay, and Javanese as *r* or less frequently as *d*. Tongan zero for *r* in Micronesia and Indonesia, and Tongan *l* for *l* in these areas, hardly appears coincidental. Thus, although no present Polynesian languages distinguishes *l* and *r*, some such distinction must have been phonemic in Proto-Polynesian time. This theory needs further study based on languages west of Polynesia.

(3) Two vowels have been reconstructed in addition to Dempwolff's five. The **æ* represents *e* and *a* in the daughter languages. It occurs only near *i* and is an assimilatory umlaut. It has been reconstructed because its occurrance is not predictable in any language. Similarly **O* represents *o* and *a* in the daughter languages and occurs only near *u*. Later work based on Polynesian vowel length, or studies of non-Polynesian Malayo-Polynesian languages, may yield some information about these reconstructions.

Vowel length is phonemic in Polynesian but has rarely been indicated in the dictionaries, and never on a phonemic level. The present writers, therefore, were unable to consider length.

Stress in Polynesian languages appears to be nonphonemic.

8 Dempwolff, 1934-1938, vol. 2, p. 192.

TABLE 1

Polynesian phoneme correspondences[1]

PPN	p	t	k	ʔ	f	v	s	h	m	n	ŋ	l	r	i	e	æ	a	O	o	u
Fu	p	t	k	ʔ/#	f	v	s	#/h	m	n	ŋ	l	l	i	e	a/e	a	a	o	u
U	p	t	k	ʔ/#	f	v	h	h/#	m	n	ŋ	l	l	i	e	a/e	a	a/o	o	u
Ni	p	t	k	#	f	v	h	h	m	n	ŋ	l	l/#	i	e	a/e	a	a/o	o	u
To	p	t	k	ʔ/#	f	v	h	h	m	n	ŋ	l	#	i	e	a/e	a	a/o	o	u
Ti	p	t	k	#	f	v	s	#	m	n	ŋ	r	r	i	e	a	a	a	o	u
E	p	t	k	#	f	v	s	#	m	n	ŋ	l	l	i	e	a	a	a	o	u
Sa	p	t	ʔ	#	f	v	s	#	m	n	ŋ	l	l	i	e	a	a	a	o	u
Si[2]	p	t	k	#	h	v	s/h	#	m	n	n	l	l	i	e	a	a	a/o	o	u
Fi[2]	p	t	k	#	f	v	s	s/#	m	n	ŋ	r	r	i	e	a/e	a	a/o	o	u
OJ[2]	p	k	ʔ	#	h	v	s/h	#	m	ŋ	ŋ	l	l	i	e	a	a	a/o	o	u
Nu[2]	p	t	k	#	f/h	v	s/h	h/#/s	m	n	ŋ	r	r	i	e	a/e	a	a/o	o	u
K	p/ph	t/th	k/kh	#	h	w/wh	h	#	m/mh	n/nh	ŋ/ŋh	r/rh	r	i	e	a	a	a/o	o	u
EI	p	t	k	#	h	v	h	#	m	n	ŋ	r	r	i	e	a/e	a	a/o	o	u
Mr	p	t	k	#	h/#	v	h/#	#	m	n	ŋ	r	r	i	e	a/e	a	a/o	o	u
Ma	p	t	k/ʔ	#	f/h	v	h	#	m	n	n/ŋ/k	ʔ	ʔ	i	e	a/e	a	a/o	o	u
Rt	p	t	k	#	ʔ/#	v	ʔ/#	#	m	n	ŋ	r	r	i	e	a/e	a	a	o	u
Tu	p	t	k	#	f/h	v	h	#	m	n	ŋ	r	r	i	e	a/e	a	a/o	o	u
NZ	p	t	k	#	h/wh	w	h	#	m	n	ŋ	r	r	i	e	a/e	a	a	o	u
H	p	k	ʔ	#	h	w	h	#	m	n	n	l	l	i	e	a/e	a	a/o	o	u
Ta	p	t	ʔ	#	f/h	v	h	#	m	n	ʔ	r	r	i	e	a/e	a	a/o	o	u

Abbreviations

E Ellice Islands
EI Easter Island
Fi Fila
Fu Futuna
H Hawaii
K Kapingamarangi
Ma Marquesas
Mr Mangareva
Ni Niue
Nu Nukuoro
NZ New Zealand
OJ Ongtong Java
PPN Proto-Polynesian
Rt Rarotonga
Sa Samoa
Si Sikiana
Ta Tahiti
Ti Tikopia
To Tonga
Tu Tuamotu
U Uvea

1 Phonemic length not listed due to insufficient data; in EI double vowels were interpreted as single long vowels. # represents zero.

2 Phoneme correspondences based on limited data, tentative only.

Consonant clusters do not occur, and with minor exceptions, all words in the dictionaries end with vowels.

The shapes of 334 reconstructed words follow:

CVCV	166 examples, or 50 percent
CVCVCV	46 examples, or 14 percent
CVV	31 examples
VCV and CVVCV	22 examples
CV and CVVCV	11 examples
CVCVCVCV	6 examples
CVVCVCV	4 examples
CVCVCVV	3 examples
VV, CVVV, and CVVCVV	2 examples

V, VCVV, CVVVV, VCVCVV, CVVCVCVCV, and CVCVCVCVCV 1 example

The phoneme correspondences are listed in Table 1.

Two Marquesan loan words were recognized as such because they contained *r* (as in Tahitian), in place of the Marquesan reflex, the glottal stop.

Departures from the shifts in Table 1 were accepted only if attributed to assimilation, metathesis, reductions, reduplications, and affixations, as described below.

1. *Assimilation.* Correspondences whose differences were ascribed to complete vocalic assimilation, whether progressive or regressive, were considered cognate. (Consonantal assimilation was excluded because of its rarity.) There follows an exhaustive listing of the assimilations noted among the equivalents of the 202 English words. A form occurring in two or more languages, at least one of which is Western (see page 148), is reconstructed as Proto-Polynesian. Forms occurring in two or more Eastern languages and in no Western language, are reconstructed as Proto-East-Polynesian, and are printed in italics. (Discrepancies in some form are explained in succeeding paragraphs.)

English	*PPN*	*Assimilated form and language (for abbreviations see Table 1)*
aloha	ʔaloʔofa	aroho K
below	laːo	rara K
dig	keli	kere Ti
	ketu	kutu Si
dirty	pela	palapala Sa; parapara Rt

English	*PPN*	*Assimilated form and language (for abbreviations see Table 1)*
drink	inu	unu Si, Fi Nu, EI; uŋu OJ
dry	paku	paka NZ; pakapaka EI
	malo	moʔo Ma; moro Ta
fall	veli	viʔi Ma
fear	*houpo*	houpu EI
go	fano	hana K
itch	maŋeo	meŋeo Mr; mekeo Ma
left	mahui	musui Fi
lie	pelo	polo Fi
nose	isu	usu Fi, Nu
one	tahi	taha Ni, To
outrigger boom	kiʔato	kioto K
pillow	ʔOluŋa	ʔuluŋa Fu; uluŋa Ni; uruŋa Ti, Fi, Rt, NZ; uluna H; uruʔa Ta
play	takalo	tatakara K
pull	tosi	toso Fu, Sa; toho Ni
spider	*tukutuku rahi nui*	tutu raha nui Ta
squeeze	kukumi	kumu Rt; ʔumu Ta
sweet	maŋalo	maŋara K
tail	siku	huku K; suku Ti
taro	talo	tara K
thick	matolu	maturu Fi; motoʔu Ma
think	masalo	maʔara Rt; mahara Tu, NZ
tongue	ʔalelo	elelo To; erero Mr
turn	fulihi	fuluhi Ni
white	kena	khene K
	maina	maiŋi OJ
wide	lohaloha	raharaha K
wing	*pærirau*	pererau Tu, Ta
woman	fafine	fifine Ni

(Kapingamarangi leads with ten examples. Fila and Niue follow with six and five each. Only Uvean and Ellice have no examples.)

2. *Metathesis.* Forms that have undergone metathesis of consonants or vowels were considered cognate. Following is a list of examples noted (East Polynesian reconstructed forms are in italics):

English	*PPN*	*Example and language*
big	nui	niniu Si
black	ʔuriʔuri	ruuri K
coconut	niu	nui Nu
cold	makalili	kamaʔiʔi Ma
fragrant	manoŋi	maŋoni U
head	*upoko*	puoko EI
lie	losi	horihori NZ
little	ʔiki	kiʔi U
narrow	lauʔiti	lautiʔi U
	faʔiti	fatiʔi To
nose	isu	uhi K
pillow	ʔOluŋa	raŋua EI
rain	ʔuha	uʔa Fu
sick	masaki	makahi To
smoke	auasi	ausia Fu
spider	kaleveleve	kavelevele U
sweet	*momona*	nomanoma EI
tail	siku	suki Nu
think	manatu	mantua Fi
want	fia	hihai K
wet	siu	sui Nu

3. *Reductions.* Like vowels separated by a glottal stop in some languages are cognate with the vowel alone in other languages, as Tongan *ʔalo ʔofa* and Hawaiian *aloha,* or Futunan *tuʔu* and *tu* elsewhere. In Hawaiian and Tahitian, at least, such reduction happens to be a live morphophonemic process characteristic of ordinary fast speech, with or without lengthening of the vowel and survival of the glottal stop. "Pig" in Hawaiian is either *puaʔa, puʔa,* or *pua* (which happens to be the word for "flower"). A Tahitian informant living in Hawaii and long away from Tahiti, remembered only the short form *puʔa.* Study of these reductions shows that the process has been operative for centuries, and affords explanation of the historical development of some of the present-day vowels. A list of nine such changes follows:

English	*PPN*	*Example and languages*
aloha	ʔaloʔofa	alofa Fu, Ni, Ti, E, Sa, Ta
bite	uʔu	u Sa, NZ
causative	faka	ha OJ, K, EI, H

English	*PPN*	*Example and languages*
male	ta$^{?}$ane	tane Ni, Sa, Si, Nu, K, Rt, Tu NZ, Ta
new	fo$^{?}$ou	fou Ni, Ti, E, Sa, Fi, Nu, EI, Mr
spider	*tukutuku rahi nui*	tutu raha nui Ta
stand	tu$^{?}$u	tu (all but Fu, Nu)
star	fetu$^{?}$u	fetu Ni, Ti, E, Sa, Ma, Tu, Ta
taboo	sa$^{?}$a	sa E, Sa

In Kapingamarangi syllable-final vowels are freely lost in fast speech, and no informant could recall the last vowel of these words that carry an additional vowel in the PPN form: PPN *mea* "red," K *mhe;* PPN *$^{?}$uri$^{?}$uri* "black," K *ruuri (*uriuri* to **ururi* to *ruuri)*; PPN *le$^{?}$o* "voice," K *le.*

4. *Reduplication.* Reduplication is so prevalent in all the Polynesian languages studied that it was decided to ignore the phenomenon in evaluating comparisons. In some languages the reduplicated form of a given word is used to the exclusion of the single form, as Samoan *pepelo* "to lie" contrasting with Hawaiian *pelo.* Frequently only one form was given in the dictionaries. The usual meaning of reduplication is repetitive or frequentative action, a semantic difference frequently not defined in dictionaries. Reduplication may be both partial and complete, as Hawaiian *puhi,* Maori *pupuhi,* and Tuamotuan *puhipuhi,* all listed as meaning "to blow."

Tongan has reduplication with partial assimilation of *a* to *o* before following *u,* and *a* to *e* before following *i,* as in *hulohula,* "dance," *hinehina,* "white," and *kolokula,* "red" (here there is then complete assimilation of first *u* to *o*).

5. *Affixations.* Presence or absence of the very common prefix **faka-,* traditionally called a causative, was ignored in all considerations. Frequently only a slight semantic difference is occasioned by presence or absence of this prefix, and in some instances the causative is used to the exclusion of the root.

In the meager Fila vocabulary, these suffixes were accepted: *-na* (in *kaina* "to eat" and *roŋona* "to hear"), and *-a* (in *keria* "to dig," *tuia* "to sew," and *soŋia* "to smell").

RESULTS OF VOCABULARY COMPARISONS

The results of the vocabulary comparisons are tabulated in Tables 2 and 3. The highest percentages of agreement as shown in Table 3 are West to West and East to East, 86 to 71. West to East percentages are considerably lower, 71 to 45. This suggests that West and East had become distinguished before the differences developed among languages in either area.

TABLE 2

Polynesian cognate percentages

U	Ni	To	Ti	E	Sa	Si[1]	Fi[1]	OJ[1]	Nu[1]	K	EI	Mr	Ma	Rt	Tu	NZ	H	Ta	
83	62	74	83	79	74	57	62	62	54	52	54	57	56	66	62	61	58	58	Fu
	72	86	78	74	70	53	59	58	52	51	53	53	51	62	62	61	55	59	U
		64	68	61	63	50	59	49	54	49	49	55	47	56	55	54	49	51	Ni
			70	64	66	46	55	55	49	45	48	49	45	58	53	54	49	52	To
				82	76	66	66	62	59	59	62	67	63	71	68	71	67	66	Ti
					78	66	61	62	59	58	61	62	63	66	66	67	68	66	E
						64	60	61	55	53	53	55	52	67	62	57	59	60	Sa
							55	60	52	55	52	55	56	60	58	60	60	59	Si
								57	52	54	54	59	53	55	61	60	55	54	Fi
									51	54	53	53	51	53	56	55	56	53	OJ
										53	49	45	44	53	50	52	49	48	Nu
											47	49	45	54	51	51	49	50	K
												64	63	64	62	63	64	62	EI
													73	75	72	70	69	68	Mr
														73	69	67	70	67	Ma
															83	83	79	85	Rt
																79	77	83	Tu
																	71	73	NZ
																		76	H

1 Percentages based on incomplete data.

TABLE 3

Chronology

Approximate dates (AD)	*West-West*	*Percentage*	*East-East*
	To/U	86	
		85	Rt/Ta
	Fu/T1; Fu/U	83	Rt/Tu; Rt/NZ; Ta/Tu
	E/T1	81	
	E/Fu	79	Rt/H; NZ/Tu
	E/Sa; T1/U	78	
		77	Tu/H
After 930	Sa/T1	76	Ta/H
		75	Rt/Mr
	E/U; To/Fu; Sa/Fu	74	
		73	Ma/Mr; Rt/Ma; NZ/Ta
	U/N1	72	Tu/Mr
		71	H/NZ
	U/Sa; T1/To	70	H/Ma; Mr/NZ
		69	H/Mr; Ta/Mr; Tu/Ma
	T1/N1	68	
After 530		67	Ma/NZ; Ma/Ta
	Sa/To	66	
		65	
	To/N1; To/E	64	Mr/EI; Rt/EI; H/EI
	Sa/N1	63	Ma/EI; NZ/EI
	Fu/N1	62	Tu/EI; Ta/EI
After 300	N1/E	61	

Outlier - West and Outlier - East Relationships

East - West Relationships

45

44

In the East the gradient of percentage differences suggests that Easter Island split off first, to be followed next by Mangareva-Marquesas, and that those in the last group were the last to be differentiated.

In the West the division is less clear and will be discussed later.

The Outliers have low percentages, but their splitting off may have occurred at about the same time as the earliest West-East separation, as the lowest figures of the two defections are 44 and 45.

The above computations, and all those in Tables 2 and 3, were made by

the multiple-cognate method (defined above). How do these results compare with those obtained by the single-cognate method of counting?

Below are listed percentages of vocabulary agreement in Samoa, Kapingamarangi, Marquesas, Tahiti, and Hawaii, based on the single-cognate method of counting (to facilitate comparison, figures from Table 2 for each pair are listed in italics below the single-cognate figures):

K	Ma	Ta	H	
45	45	37	50	Sa
53	*52*	*60*	*59*	
	41	33	44	K
	45	*50*	*49*	
		47	64	Ma
		67	*70*	
			51	Ta
			76	

The top or single-cognate figures are considerably lower than the multiple-cognate figures printed in italics. This is to be expected. Cognates are fewer when obsolete and rare terms are excluded from consideration. Figures of agreement are accordingly lower. Interrelationships involving Kapingamarangi, Marquesas, and Hawaii are from four to nine percent lower in the single-cognate count, and interrelationships involving Tahiti are from seventeen to twenty-five percent lower. Why are the Tahitian figures so aberrant?

The rate of change in Tahiti may have been unusually fast, and this may be attributed to a peculiarly Tahitian system of tabooing words after the death of a chief of the same name.[9] As an example, the old name for water in Tahitian was *vai*, but after the death of a chief named Vai, the name for water was changed to *pape*. (The name of the capital was likewise changed from Vai-ʔete to Pape-ʔete.) Similarly, the names for the common numerals two and five were changed, as well as all words containing the common morpheme or even the sounds *tu*.

The unusually fast rate of language change at Tahiti, therefore, seems to nullify the usability of the glottochronological method as far as Tahiti is concerned if the slice of language examined is synchronic and selective and based on single cognates, but the perturbations are less acute if the cut is diachronic and based on multiple cognates (as in Table 2). The multiple-cognate ap-

9 Vernier, 1948. A comparable situation among Salish coastal tribes is discussed in Elmendorf, 1951.

proach seems to flatten out and minimize the differences between the compared languages.

MORPHOLOGY

Since no scientific Polynesian grammars have so far been produced, and since texts are lacking for some of the languages, it is possible merely to suggest a few of the more obvious morphological features that are noted as widespread in the three areas of Poylnesia, and to note four features whose distribution is restricted. The shared features are additional evidence that the languages under consideration belong to a single family. The distribution of the restricted features will be correlated with the results of the vocabulary comparisons. Both vocabulary and morphology help establish chronology. This brief outline, is, of course, in no way exhaustive, and adequate comparative grammar awaits adequate descriptive grammars. With these data, a statistical study similar to Kroeber and Crétien's analysis of Indo-European[10] can be made.

The following features are widespread among Polynesian languages:

Two principal classes of words that may be termed full words and particles. Full words may be subdivided on the basis of contiguous particles and position, with the subdivisions labelled by such terms as noun, verb, and adjective.

Particles indicative of such categories as tense-aspect, mood, and case; some particles precede the base, others follow, and a few are discontinuous. The traditional "causative" **faka*, for example, has been noted everywhere except in Fila, where data are lacking. A particle usually termed "definite article" has been found in every language, as well as particles marking numerals.

Reduplication, partial and complete, with various meanings, including frequentative or repetitive action.

Directional particles following a base (**mai*, "direction towards the speaker," was noted in every language).

Demonstratives, usually indicating position near the speaker, near the addressee, and away from either.

Personal pronouns with distinctions of singular, dual, and plural numbers, and inclusiveness and exclusiveness of the dual and plural first persons.

Possessive dichotomy of forms with *o*-forms and *a*-forms.

The following four features are restricted to Western and Outlying areas:

"Short" pronouns as well as "long" pronouns:[11] in Fu, U, To, Ti, E, Sa, Fi. In Samoan the "short" forms occupy a different position. For example, the "long"

10 Kroeber and Chrétien, 1937.

11 A similar dichotomy was notel in Indonesia by Brandstetter, 1916, pp. 198-204, and in Truk (Micronesia) by Elbert, 1947, p. 9.

pronoun *ʔoe* "you" follows the verb and the "short" *ʔe* precedes the verb: *ua alu ʔoe* and *ua ʔe alu*, both meaning *did (ua) you go (alu)*.

Pronouns containing **ki*:[12] in To, E (rare), Sa, Si, Nu, K.

Possessives containing an **s*- morpheme: in Fu, U, To, E, Sa.

"Reciprocal" particle **fe*-: in Fu, U, To, Ti, E, Sa.

The distribution of these restricted features may be summarized as follows:

	Features retained
West:	
To, E, Sa	4
Fu, U	3
Ti	1
Ni	0
Outliers:	
Si, Fi, Nu, K	1
OJ	0
East:	0

The fact that no Eastern language possesses these features, indicates a probable time lapse between their separation from the West and the departure of their own sub-members.

It is surprising that the Outliers have apparently only one of these features; this may be clarified when more data are available. Judging from the present meager evidence, the morphological simplicity of the Outliers would relate them more closely to the East than to the West.

THE FAMILY TREE

A parallel may be drawn in the Pacific between phonology, morphology, flora, and fauna. Increasing distances from the Asiatic homeland is accompanied by increasing sparseness of forms. As people migrated eastward, they seem to have lost phonemic distinctions and to have simplified morphology, and to have taken with them or to have found fewer species of plants and fauna.

The trail of increasing simplicity in Polynesia seems to have been somewhat as follows:

The most complex and archaic language phonemically is Tongan. Only by consideration of Tongan (and its satellites, Uvean, Futunan, and Niue), can there be any reconstruction of PPN **ʔ*, **h*, and **r*, as these phonemes are lost elsewhere by replacement by zero, or by uniting with another phoneme.

12 The same form was noted by Capell in Melanesia and Indonesia, 1935-1937, p. 170.

Some of the Eastern languages are still further simplified, as follows: uniting of reflexes of PPN *f and *s (EI, Mr, North Marquesas, Rt, H), *k and *ŋ (Ta), *k and *l (South Marquesas), and *n and *ŋ (H).[13]

As for morphology, we have seen that the East is simpler than the West, and the Outliers somewhat closer to the East.

The order of increasing sparseness of forms is then Tongan, Samoan, and the East.

Were the migrations accompanied by linguistic simplifications, while the stay-at-homes retained ancient forms? By such reasoning, Tonga becomes the original home of the Polynesians within Polynesia, a theory at variance with the usual designation of more attractive and lush Samoa as the dispersal point within Polynesia. But Samoa might have been the homeland, with the Samoan simplifications occurring after the separation of the Tongans.

Each of the main Western groups established colonies: Tonga in Futuna, Uvea, and Niue; Samoe in Tikopia and Ellice. This is shown by percentages of vocabulary agreement, and accords with local traditions.[14]

The divisions in the West, however, are not as clear-cut as are those in the East. In Tables 2 and 3 this lack of clear-cut division is shown by overlapping of percentages of agreement. In Table 1 the lack of clear-cut division is shown by zero varying with reflexes of PPN *ʔ, *h, and *r. Both conditions may be explained by consideration of a map and of local traditions. The Western languages (except for Tikopian) are comparatively near neighbors. The Eastern languages are for the most part widely scattered. Traditions, further, insist that intercourse among the Westerners was very great and constant. Tongans are believed to have occupied Samoa at the end of the twelfth century, and to have remained there during the reigns of five kings.[15] Samoan legends refer with great frequency to Tonga and Fiji, and a common Samoan word today for "trickery, scheme" is *tongafiti*, literally Tonga-Fiji.

Of the Outliers, only Kapingamarangi can be considered because data are inadequate for the others, and even Kapingamarangi's assignment must await acquisition of such data. Phonologically Kapingamarangi can belong with either Samoa or the East, although the uniting of PPN *f and *s as a single phoneme

13 Samoan is today following the path to simplification, in that in ordinary fast speech *n* and *ŋ* are united as *ŋ*. Only in very slow speech, as to foreigners, or in the pulpit, is there an effort to distinguish the two.

14 Burrows, 1936, p. 54; 1937, pp. 169-170.

15 Buck, 1938a, p. 294; cf. also p. 293.

is characteristic of the East.[16] As shown above, Kapingamarangi's morphological simplicity puts the language closer to the East. In common vocabulary, Kapingamarangi shares only a few more cognate words with the West (average 52.5 percent) than with the East (average 49.5 percent). Another type of lexical check was made. Kapingamarangi shared eight of 56 exclusively West-Outlier words, and three of 46 exclusively East-Outlier words. Vocabulary thus puts Kapingamarangi somewhat closer to the West than to the East, in contradiction to morphological evidence. It may be that a handful of Eastern Polynesians established the settlement, and that somehow they were joined by a few Western Polynesians, perhaps Ellice Islanders,[17] who brought Western vocabulary items to the simplified Eastern-type structure.

The fact that the East is slightly closer in common vocabulary to the West than are Kapingamarangi and the other Outliers, may be explained by West-East contact and diffusion, or by a particularly fast rate of change among the Outliers. Isolation is usually said to retard language change, but few if any records exist of rate of change among tiny groups isolated for centuries, as may have been the case on some of the remote Pacific atolls. The population of Kapingamarangi today is less than 500, in 1910 it was less than 300.[18] At comparable rate of decrease, this would mean about 70 persons in 1800 and 20 in 1700. Changes occur, perhaps, with particular swiftness in languages spoken by such handfuls of people, especially if the culture is not conservatively oriented. Further, adherents of areal linguistics might suggest that the Kapingamarangi rate of change may have been accelerated as a result of contact with the strange tongues of the Micronesian and Melanesian neighbors.

The Eastern people must have lived together for some centuries, perhaps in

16 A few Fila and Nukuoro words, however, contain equivalents of PPN **h*, found elsewhere only in Uvean, Niue, and Tonga. The presence of a reflex of this phoneme can not be ascertained until larger and more accurate vocabularies and grammars are available from these areas.

17 A chant well known on Kapingamarangi mentions Nikuhetau as a stopping place of the wife of Utamatua, who first settled Kapingamarangi (Elbert, 1948, p. 139). Perhaps this is Nukufetau in the Ellice Islands. Nukuoro traditions likewise mention Nukufetau as a point of origin, and other names in the Ellice, Gilbert, Tongan, and Samoan Islands are also known (Kubary, 1900, p. 76). The old idea that the Outliers may represent colonies established by the original migrants moving eastward is refuted by these traditions, as well as by material brought out in this study about the phonemic and morphologic simplification of the Outliers in ways similar to those undergone in the East, as well as by the presence of words shared exclusively with the East.

18 Eilers, 1934, p. 43.

the centrally located Society Islands.[19] They stayed together long enough to simplify their structure, and to achieve a decided lexical homogeneity (forty-six words found in at least two Eastern languages were not found at all in the West).

Easter Islanders were probably the first to leave the Eastern dispersal point. This agrees with Métraux's statement that the Easter Islanders left central Polynesia "at an early date, before any of the later local cultures had developed." It is at variance, however, with another statement by Métraux that the ancestors of Easter Island and New Zealand left central Polynesia at about the same time.[20] However, the lowness of Easter Island percentages relative to those of other Easterners may be partly due to the poor dictionary that served as source for Easter Island data.

Later the Proto-Marquesans left the Eastern home and settled in the Marquesas and in Mangareva. The final departures in the East resulted in the establishment of four settlements at about the same time, or in this relative order, according to decreasing deviancy of vocabulary samenesses: Hawaii, New Zealand, Tuamotu, and Rarotonga. (Diffusions may have increased Tahiti's lexical closeness to nearby Tuamotu and Rarotonga, in which event the latter settlements would have been earlier.)

Is it at all possible to date these migrations?

Lees has made and collected probably the most careful computations of rates of language change. He has kindly furnished the writers these as yet unpublished comparisons showing percentages of shared vocabulary:

Languages compared	*Years between comparisons*	*Percentage of vocabulary agreement*
Modern English and Old English	1,000	76.6
Colloquial Chinese and Ancient Classical Chinese of 950 AD	1,000	79.5
German and Old High German of 850 AD	1,100	85.4
Spanish of 1600 and Latin of 200 BC	1,800	79.0
French of 1650 and Latin of 200 BC	1,850	81.0
Italian and Latin	2,000	81.0
Portuguese and Latin	2,000	81.8
Roumanian and Latin	2,000	77.0

19 Buck suggests that the first settlers in Polynesia were of an "inferior social status" and settled in Hawaii, the Society Islands, and Samoa, and that they were followed later by people of the same stock of a "higher social grade" who settled in the Society Islands (Buck, 1938a, pp. 58-63). Linguistic data can as yet offer no evidence for the first theory.

20 Both statements are on p. 419, Métraux, 1940.

Modern Athenian and Koiné Greek of 250 BC	2,070	83.6
Modern Cypriote and Koiné Greek	2,070	82.9
Coptic of 300 AD and Middle Egyptian of 1900 BC	2,200	76.0

The average percentage of vocabulary retention in 1,000 years is 80.48 ± .0182.

The percentages in Tables 2 and 3 are not comparable with the above, because the latter were computed by what has been called herein the single-cognate method. The Polynesian figures derived by the single-cognate method and listed on page 161, however, are comparable, except that the Tahitian computations must be eliminated because of the rapid rate of change probably engendered by the taboo system.

Using these single-cognate percentages for Kapingamarangi, Samoa, Marquesas, and Hawaii, Lees[21] has computed time depths as shown below, basing his computations on the average retention in 1,000 years as derived from the amount of change in other languages. For two computations he has allowed nine-tenths error, resulting in 90 percent assurance. The equations are too complicated for inclusion here.

Dates estimated for separation of languages

Samoa	*Marquesas*	*Hawaii*	
100 AD	480 BC to 260 AD	50 AD	*Kapingamarangi*
	100 AD	350 AD	*Samoa*
		700 AD to 1140 AD	*Marquesas*

The Polynesian percentages based on the single-cognate method average 6.5 percent lower than computations by the multiple-cognate method, if Tahiti is not considered. Thus it is possible to deduct 6.5 percent from each of the percentages on Tables 2 and 3 and arrive at time depths. This has been done, on the basis of Lees' equations, and the three approximate dates on Table 3 were thus obtained, allowing for the *maximum* of age with 90 percent assurance, as well as the date for separation of Hawaii and Tahiti as between 930 and 1300 AD.

It must be borne in mind that diffusion increases percentages of vocabulary agreement, and therefore lessens time depths. More reliance can be attached

21 Personal communication dated Dec. 3, 1952.

to percentages of agreement of languages in widely separate areas, as Hawaii and New Zealand, than as between nearby languages, with much opportunity for diffusion, as in the West. The Hawaiian and New Zealand dates therefore are more credible than those of the Western languages, which may be older than indicated on Table 3.

How does dating by vocabulary comparisons compare with dating by other means?

Non-linguistic sources provide these settlement dates (all AD):

Uvea: The first king of Uvea probably lived between 1450 and 1600.[22]

Niue: Basing his estimates on oral tradition, Percy Smith[23] thinks Niue was first settled from Samoa from the eighth to the 13th centuries, and probably after 650, when he believes East Polynesia to have been discovered.

Ellice: Genealogies indicate that Vaitupu in this group was settled about 1530.[24]

Mangareva: Tradition shows 1250.[25]

Rarotonga: Tradition shows 1250.[26]

New Zealand: Tradition puts the heaviest infiltration at about 1350, but some settlements considerably earlier.[27]

Hawaii: Emory[28] synthesizes previous studies of genealogy by Fornander and by Cartwright, and places the most reliable settlement date according to this method of computation, as thirty-four generations before 1900. At twenty-five years to a generation, this is 1050.

A recent Carbon-14 test shows that a Hawaiian group occupied a cave located within the environs of modern Honolulu in the year 1004 $\pm$ 180 years.[29]

Thus for settlement in Hawaii we have data from three sources: genealogies: 1050 AD; Carbon-14: 818 to 1190 AD (but not necessarily the *first* settlement); glottochronology: 930 to 1300 AD.

LANGUAGE OR DIALECT?

This study does not attempt to answer the question of the applicability of the terms "language" and "dialect" to Polynesian. That must await application to Polynesia of a method of testing informants' comprehension, such as that

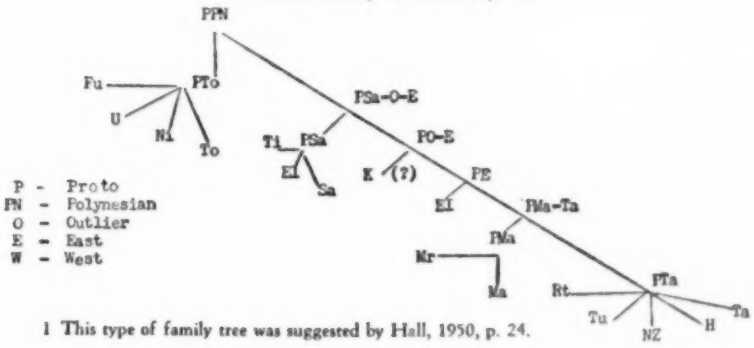
22 Burrows, 1937, p. 18.
23 Smith, 1903, pp. 3-7.
24 Kennedy, 1931, p. 2.
25 Buck, 1938b, p. 18.
26 Buck, 1932, p. 19.
27 Buck, 1949, pp. 20, 69-70.
28 Emory, 1952, pp. 1-5; see also Fornander, 1878, and Cartwright, 1930.
29 Johnson, 1951, p. 16.

suggested by Voegelin and Harris and applied by Voegelin's students to Iroquois and Algonquian.[30]

Some light, however, is shed on the matter by this study. The single-cognate method which excludes obsolete terms provides a closer gauge of mutual intelligibility at a given moment than the multiple-cognate method. As previously mentioned, the percentages obtained by the former method (omitting Tahitian) average 6.5 percent lower than the percentages in Tables 2 and 3. Thus, even assuming that cognates which have undergone phonemic shifts and phonetic and grammatical changes are still understandable, the percentages of agreement of basic vocabulary are very low.[31] Certainly it is dangerous to speak indiscriminately of Polynesian dialects, and at the very least, three distinct languages exist: West Polynesian, Kapingamarangi, and East Polynesian.

TABLE 4

A tentative family tree for Polynesia[1]



1 This type of family tree was suggested by Hall, 1950, p. 24.

SUMMARY AND CONCLUSIONS

1. A set of phonemic shifts was tentatively established for twenty Polynesian languages, and a Proto-Polynesian phonemic system was reconstructed (Table 1).

2. Rigorous criteria were established for comparing a basic vocabulary of 202 words in these languages.

3. Two methods of computation were used, called tentatively multiple-cognate and single-cognate. Computations based on the latter method for Tahiti were suspect because of very rapid language change there.

30 Voegelin and Harris, 1950; Hickerson, Turner, and Hickerson, 1952; Pierce, 1952.

31 The Hickersons and Turner suggest 75 percent intelligibility as the minimum for designating "communilects" as dialects of the same language.

4. A morphological comparison showed simplification in the East and to a somewhat lesser extent among the Outliers.

5. A list of percentages of vocabulary agreement in order of magnitude showed clearly a West-East schism (Table 3), confirming morphological findings. The same table showed subdivisions in both West and East, more clearly in the latter. Kapingamarangi was a little closer lexically to the West than to the East, but morphologically and phonemically more like the East. The Kapingamarangi position remains undetermined until more data are available from other Outliers.

6. A family tree was drafted on the basis of the above findings.

7. The linguistic results rather closely paralleled findings based on non-linguistic data (genealogy, traditions, and a Carbon-14 test in Hawaii).

8. Percentages of vocabulary agreement are so low that at least three Polynesian languages must be said to exist: West Polynesian, Kapingamarangi, and East Polynesian.

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UNIVERSITY OF HAWAII
HONOLULU, HAWAII

THE BEARING OF ARCHITECTURE ON DEVELOPMENTS IN THE HOHOKAM CLASSIC PERIOD

ALBERT H. SCHROEDER

THE CLASSIC PERIOD (1150-1400 AD) of the Hohokam in the Gila and Salt River valleys of southern Arizona exhibits a number of traits which are completely foreign to the culture of the previous Sedentary Period (900-1150 AD)—mainly polished redware, inhumation, contiguous-roomed, solid-walled houses, and a dominance of utilitarian artifacts. These are opposed to the typical Hohokam traits of unpolished plain and decorated wares, cremation, single-unit jacal structures, and a considerable assemblage of ornate artifacts and luxury items. The various aspects of the ceramic situation of the Classic Period and their relation to the Sinagua of northern Arizona have been considered in a previous article.[1] This paper is concerned with the architectural aspects of the Classic Period and their relation to the Sinagua.

Prior to the advent of the above mentioned new traits among the Hohokam of southern Arizona, the Sacaton phase (900-1150 AD) Hohokam house type was a jacal, rectangular with rounded corners. The floor was prepared by digging a shallow excavation and finishing with a caliche surface. The sides of the structure consisted of a framework of small, closely spaced, vertical poles, held together by horizontal poles and lashings, set along the perimeter of the floor, and the roof was supported by two posts embedded in the floor.

Among the traits that appeared about 1150 AD were small, rectangular, caliche-walled houses without roof support posts in the floor. Widely separated vertical poles were embedded within the side walls, and the floor was on the level of the desert surface. Recorded single-room structures of this type are few in number.[2] However, when the house mounds and contiguous structures of this subsequent phase (Soho—1150 to 1300 AD) are considered, the use of post-reinforced walls appears quite common.

All sources agree that post-reinforced walls were an early type of wall construction in the Classic Period (Soho phase). Fewkes considered them to be

1 Schroeder, 1952.

2 W. and H. S. Gladwin, (1929, pp. 31-36) assigned these structures to pre-polychrome time, from the Sedentary into the Classic Period. Hastings (1934, pp. A-C) described three types of unit structures, along with one possible contiguous group, at Casa Grande. No compound was associated and all were of pre-polychrome date.

earlier than the adobe walls without post-reinforcing, which were common in the Civano phase (1300 to 1400 AD). Gladwin recorded post-reinforced walls with pre-Civano pottery at Adamsville. Haury noted them primarily as a pre-Civano device at Los Muertos. Schmidt recorded their occurrence in the lower Classic Period floors at La Ciudad. Hayden assigned them mainly to the Soho phase, but recorded some of these walls over the solid walls at Pueblo Grande. Hastings recorded them as of pre-polychrome time at Casa Grande.[3]

The house mounds represent the largest prehistoric architectural features of the Classic Period in the Gila Basin. They range from 32 to 160 meters in length, 30 to 89 meters in width, and stand from 1.5 to 12 meters high. None of these features has been fully excavated in recent years, and as a result little is known other than that which can be gleaned from early excavations and tests and the more recent partial but important excavations at Pueblo Grande by Hayden.

At Pueblo Grande excavations revealed that a large massive-walled (caliche) rectangular structure was erected in Soho times. The interior of this walled area was deliberately filled with trash to form a house mound, and lying directly on the fill were very large Sacaton phase-type structures with oval ends, entrance way, etc.[4] Later in the same phase, an area divided with lines of posts into small rectangular spaces, perhaps storage bins, was enclosed when the natives set up additional retaining walls to enlarge the mound. Thus the entire base of the mound was composed of deliberate fill, except for the retaining walls which enclosed it. Occupation occurred on the upper levels and in the surrounding desert flat.[5]

The ground plan of ruin I at Los Muertos reveals post-reinforcing in the east retaining wall of the house mound.[6] However, most such walls do not exhibit this type of construction, probably due to the lack of timber available in such lengths as would be required. Retaining walls in the main were massive and of caliche. Pueblo Grande is an exception, having some rubble walls of limestone and caliche, but not of stone as Gladwin implied.[7]

Moorehead, in discussing Las Colinas in the Salt River valley, offered evidence to support the conclusion that these mounds were composed of artificial bases.[8]

3 Fewkes, 1912, pp. 41, 101; Schmidt, 1928, p. 280; H. S. Gladwin, 1928, pp. 16-18, 26-27; Hastings, 1934, pp. A-C; Hayden, 1941, pp. 9, 233; Haury, 1945, p. 17.

4 Hayden, 1941, p. 226.

5 Idem, pp. 144, 216, 225.

6 Haury, 1945, p. 18.

7 W. and H. S. Gladwin, 1935, p. 251. See also Turney, 1929, p. 106. Hayden makes the same statement as Turney.

8 Moorehead, 1906, pp. 102-103. Italics in this quotation, as well as those that follow, are mine.

When the main trench was down about three meters we observed numerous pottery fragments, ashes, charcoal, and broken bones. . . . No floors could be traced and no walls found in the central cut *save at the ends*. We cleaned out the central cut to the original base, exposing six meters by 19 meters, and found little or nothing.

[In] the west trench . . . other objects were found, near the surface of the trench but nothing further down or upon the original surface save the usual charcoal and ashes and pottery fragments. In fact nearly all the objects *occurred near the surface*.

Regarding the north temple . . . [it] seems to be a collection of small rooms built upon an *original kitchen midden* at various times.

Patrick, in reviewing his tests into compounds, recorded similar observations:[9]

. . . but there are no evidence that any of them were more than one story in height at any one time, though in excavating from top downward in these mounds, several floors have been found, several feet apart, *under which* was solid earth, filled with many fragments of pottery, shell, and charcoal.

Schmidt mentioned finding several successive floors[10] at La Ciudad in the Salt River valley. He observed superimposed floors wherein the top floor contained Gila Polychrome and the bottom floor, separated from the above by three floors, yielded red-on-buff pottery and one piece of black-on-white, but no polychrome. Upright pole remains were found in line 3.5 to 4 meters below the top of the mound.

Fewkes encountered at Casa Grande evidence of considerable rebuilding.[11]

On the southwest side of this pyramid *shallow excavations* revealed several cemented floors one below another . . .; each of these floors contains a well made firepit.

The existence of these floors or evidences of rooms situated one above the other would seem to indicate that a considerable portion of this pyramid was *formed by accumulations of earth* resulting from the decay of habitations.

In the southwest portion of Pueblo Grande, Hayden encountered floors down to a level of 5 feet 8 inches beneath the top surface of the mound and from there down found deliberate fill.[12]

Bandelier apparently arrived at the conclusion that the core of the mounds was artificial. He stated "lines of foundation on the surface, and smaller mounds rising from them indicated that the *artificial eminence* had originally supported buildings on its summit."[13]

9 Patrick, 1903, p. 10.
10 Schmidt, 1926, p. 643; 1928, p. 280
11 Fewkes, 1912, p. 98.
12 J. Hayden, personal communication.
13 Bandelier, 1892, p. 444.

In describing Los Hornos in the Salt River valley, Cushing remarked that the central mound was a huge mass of debris from a once towering structure.[14] He considered mounds such as this as representing collapsed solid-walled structures on the order of the multiple-storied structure at Casa Grande. At Los Muertos he referred to ruin I as such. However, examination of the plan of the Los Muertos ruin indicates that it was a mound with retaining walls rather than a many-storied structure. The east and south walls were reinforced with posts, while the ground plan indicates relatively few rooms and the presence of mound enlargements with retaining walls. The large mound at Los Hornos also appears to be a house mound similar to that at Pueblo Grande and not a multi-storied building. Moreover, Haury, who re-examined the material from Los Hornos, noted that most of the sherds and many of the six hundred specimens represented pre-Civano phase material, which he considered ranged from late Colonial or early Sedentary times (about 900 AD) into the Classic Period (post-1150 AD), long enough to receive the increments of a pueblo group.[15] This then would imply habitation into the Soho phase at least. The associated material places this ruin mainly in the Soho phase with a slight capping of Civano, the site thus further substantiating Hayden's finds at Pueblo Grande where the house mound was shown to be a Soho phase device. If this mound at Los Hornos had been a multi-storied structure similar to the big house at Casa Grande, which is supposed to be late (i.e. Civano), certainly one would expect to find a greater representation of Civano phase culture.

Most earlier investigators agree that the house mounds consisted of trash with successive occupational levels only in the upper portions. All appear to have been constructed in the Soho phase and to have been occupied through the Civano phase as well. Fewkes noted living quarters on the upper levels at Casa Grande; and Hayden uncovered evidence of the same at Pueblo Grande, as well as rooms containing caches of axes, pottery, masses of mica tempering material, beads and seeds, apparently representing storage rooms.[16] The comparative absence of post holes in house floors is also noted by these investigators. When more than one occur they are usually few and far between with no evidence of order, suggesting use as additional supports for a sagging roof. The lack of post holes suggests use of wall beam sockets such as are evident at Casa Grande. Evidence to date does not indicate that the house mounds held many rooms during the Soho phase. The main portion of the village apparently was scattered around the base of the mound

14 Haury, 1945, pp. 179-180.
15 Idem, p. 180.
16 Hayden, 1941, pp. 226, 238.

on the desert flats. According to Fewkes, Cushing, Turney, and others, each village had at least one house mound, usually centrally located.[17]

Another type of structure that appears to belong in the Soho phase was excavated at Sacaton 9:6 by Gladwin. He referred to the structure on the desert flat as a compound. Walls were either post-reinforced or solid caliche including portions of the courtyard wall at one end of the building. Pottery associations at this site ranged from the Sedentary Period into the late Soho phase (pre-1150 to about 1250 AD). Gila Polychrome, which has a beginning date of 1250 AD, was lacking. However, pottery from a trash mound near this particular dwelling is representative of the late Soho phase. The structure is not a compound since it was not surrounded by an enclosing wall, against which later rooms might have been added. It is a dwelling which exhibits an enclosure or courtyard adjacent to the dwelling rooms. Courtyard ruins of this type are found in the Tonto Basin and in the Verde Valley more commonly during this period and at an earlier date among the Cohonina near Flagstaff. This compact dwelling at Sacaton 9:6 may have been one of the first of its type erected in the Gila Basin, as deduced from the associated pottery and the use of post-reinforcing in the thin outer walls.[18]

The architectural traits discussed above appear in the Soho phase and will be referred to again below. In addition, each of these features is found at an earlier date in the north among the Sinagua—dwellings on elevated terrain (1125 AD), post-reinforced masonry pithouse walls (1070-1120 AD), contiguous dwellings (1125 AD), and courtyards in boulder sites (post-1125 AD among the Sinagua and pre-1120 AD among the Cohonina, immediate neighbors of the Sinagua).

Hayden, in 1941, assigned the massive village compound walls of Pueblo Grande to the Civano phase on the basis of the attached solid caliche-walled rooms which contained Gila Polychrome.[19] At that time Gila Polychrome had an assigned beginning date of 1300 AD. Since this type of pottery is now known to have appeared about 1250 AD, the construction of compound walls and attached rooms may have had their beginnings near the end of the Soho phase, before 1300 AD. The compound walls were erected some distance away from the house mound proper at Pueblo Grande, Casa Grande, and other sites, allowing room for dwellings to be built in the intervening area. There was an obvious concentration within the compound walls. This is the first apparent evidence of defense architecture

17 See map in Turney, 1929.

18 See H. S. Gladwin, 1928, p. 19 and 1929, pp. 34-36. Also Schroeder, 1952, p. 332, wherein the ceramic associations are considered.

19 Hayden, 1941, pp. 227-228.

connected with village sites in the Salt River valley and Gila Basin in general.[20]

Most of the rooms of the Civano phase differ from those of the preceding Soho phase in that walls were of caliche mud, not post-reinforced. This change in wall type apparently fits into the transition between the Soho and Civano phases. These late solid-walled rooms on the mounds do not indicate any preconceived plan in their space arrangement, though in the majority of cases they parallel one another and often are contiguous. Other evidence of solid walls being late is noted in the occurrence of a sherd of Jeddito Black-on-yellow, which dates after 1325 AD, beneath the solid-walled northeast building in Compound A at Casa Grande. This structure had been erected over post-reinforced dwellings that the natives had levelled.[21]

All house mounds investigated to date have been surrounded by compound walls, but not all surface dwellings have been found so enclosed. Los Muertos, which was ninety percent Civano phase, exhibits one unit which is a house mound surrounded by a compound wall, and in addition, several other solid-walled units or groups with or without compound walls.[22] As solid caliche walls occur on the top levels of all house mounds tested to date as well as in dwellings on the desert floor, whether or not they are surrounded by compound walls, those structures with solid walls not enclosed by a compound wall are assumed to be representative of the Civano phase.

Turney was under the impression that the compound walls examined by him prior to the modern leveling of many of the ruins in the Salt River valley did not always exist on all four sides of the house mounds. He stated that the existing compound walls were situated on the side of the ruins which were subject to drainage resulting from precipitation or irrigation.[23] Such a possibility should be considered, though available evidence does not tend to support his view. Many of the village clusters were located at the ends of the canals and would not be subject to irrigation damage.[24] Other compounds, such as Los Muertos, which were completely enclosed, were surrounded by other nearby dwelling clusters with the outlying farmlands beyond them. Yet not all of those dwellings between the central compound and the fields revealed compound walls. It is more probable

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20 Fewkes (1912, pp. 85, 92) noted the presence of a sealed door in the big house at Casa Grande and in room G of the north building of Compound A. Since these occur in structures within the compound walls, it is doubtful that their primary function was one of defense.

21 Pinkley, 1936.

22 Haury, 1945; see plans of various dwellings.

23 Turney, 1929, pp. 107-108.

24 Hodge, 1893, p. 326.

that all sites with evidence of compound walls were at one time completely enclosed, as other authorities have indicated.[25]

Neither Hayden nor Fewkes implied that the compound wall was constructed as a protection against the water in the fields or from the ground water below. Hayden showed in detail that the bases of Soho phase walls suffered little from salt erosion but that Civano phase walls were heavily affected by such deterioration and undercutting.[26] Fewkes illustrated similar disintegration along late wall bases at Casa Grande.[27] Such erosion most readily occurs in areas of concentrated irrigation, and a situation of this type might well have occurred during a drought, or more probably, after many years of concentrated use.[28] Low walls would have withheld irrigation waters, it is true, but the high compound walls must have been constructed for some other purpose.

The construction of compound walls at this time (around 1300 AD or before), when considered along with the fact that post-reinforced walls fell out of general use at the same time, does not shed any light on the reason for such a development. The use of compound walls had its beginning either just prior to or at the time of the introduction of polychrome pottery, perhaps 1275 AD, or approximately coincident with the beginning of the drought of 1276 to 1299 AD. If the end date of this architectural practice could be established, the chronology of the architectural development would be more certain, particularly in regard to the placement of surface dwellings with and without enclosing walls.

Three varieties of compounds are noted. One contains a house mound and post-reinforced dwellings, as well as later caliche-walled dwellings, within its confines; another type surrounds post-reinforced dwellings as well as those of caliche, but lacks a house mound; and a third type is a compound wall against which and within which solid-walled dwellings were erected, no sign of post-reinforced structures or house mounds being evident. Probably the first two varieties were contemporaneous, followed by the third type. It would seem that the first two represent villages where the occupants suddenly found it necessary to employ compound walls around their central house mound and various clusters of post-reinforced houses nearby. The third variation seems to have been erected to house additional people, perhaps slightly later, under adverse conditions, the compound wall having been constructed first and the solid-walled

25 Bandelier, 1892, pp. 420-461; Turney, 1929, p. 12, quoting Cushing.
26 Hayden, 1941, p. 144; 1945, p. 377.
27 Fewkes, 1912, pp. 92, 97, 105.
28 Schroeder, 1943, p. 385.

structures within being erected afterwards against the enclosing wall. If this suggested order of development is correct, we can assume that the caliche-walled dwellings without enclosing walls, situated on the desert floor, were erected after the need for compound walls declined, or at least during an interval when compound walls were not needed. It would appear that such walls were not employed or were not necessary throughout the entire Civano phase.

Gladwin has referred to compounds as a feature common to the so-called Salado area, beginning in the Roosevelt phase, which he estimated began sometime shortly after 1100 AD. Illustrations of such compounds, as well as those described, indicate the remains of his "early" type consisted of an enclosure of a single row of rocks against which houses were built while his "late" type exhibited a low wall of a few courses in height surrounding a pueblo.[29] Some sites appear to be similar to the garden or courtyard sites described by Sayles in his report on Chihuahua.[30] In discussing the distribution of compounds in general, Gladwin remarked they reached their "greatest popularity in the eastern half of the Tonto Basin between Roosevelt Dam and the gorge of the Salt River." Usually they were located on fairly high ground, but he stated the locations chosen did not indicate defense.[31] He further observed that early and late "compounds occur together, often adjoining one another, though the late type is more widely spread, being distributed throughout southern Arizona."[32] It is to be noted that Gladwin, in his statement on compounds in the Tonto Basin, presents a chronological development directly opposite that of the Gila Basin wherein data discussed above indicate that a central structure or clusters of houses were enclosed first and the construction of random houses against the compound wall appeared slightly later, as deduced from associated ceramics and wall type construction.

Schmidt's description of ruins on the northeast shore of Roosevelt Lake is more in keeping with the data from southern Arizona. He stated that one site —a courtyard ruin with a few rooms in the center and at the sides—was enclosed by a long row of stones, and that nearby was a "Casa Grande" type ruin which was similar to the courtyard ruin except that it contained a "temple building" (pueblo?).[33] Thus Schmidt's data indicate that the Tonto

29 W. and H. S. Gladwin, 1935, plates XXXII and XXXIV; see also Sauer and Brand, 1930, plate 59b.

30 Sayles, 1936, p. 31 and illustrations, p. 33; also Bandelier, 1892, pp. 420-421, 533-534.

31 W. and H. S. Gladwin, 1935, p. 215.

32 *Idem*, p. 218.

33 Schmidt, 1926, pp. 640-641.

Basin compounds apparently followed a development similar to that of the Gila Basin—the courtyard type structure with pre-1300 AD pottery, which, originally an open village in all probability (just like the pre-1300 site of Sacaton 9:6 in the Gila Basin) was enclosed at the same time as the nearby pueblo (probably just before 1300), with later houses having been erected against the outer wall of the courtyard type compound. We are not certain whether these two types of compound are a Saladoan expression or—more probably—the result of diffusion out of the Gila Basin. If we accept these structures enclosed by lines of stone in the Tonto area as compounds (perhaps palisaded) and assume they were constructed for the same purpose as those of the Gila Basin, it is quite possible that the idea of a compound diffused from the Gila Basin, especially since structures (not villages) with low enclosing walls, exhibiting pre-1150 AD Sacaton phase through post-1150 AD Classic Period pottery, do occur in the Gila Basin.[34] Our lack of knowledge concerning the so-called Salado is vital.

I would like to take the opportunity here to clarify a statement I made on page 333 of my recent article (1952) pertaining to ceramics, wherein I stated only paddle-and-anvil utility ware occurred in the Tonto Basin. I was speaking specifically of plainware. I did not mention the presence of corrugated pottery, which does occur in the Tonto Basin, having concerned myself only with the specific traits Gladwin had stressed as Saladoan. Mr Charlie Steen, of the National Park Service, informs me that the upper ruin at Tonto National Monument exhibits about a 50-50 division of corrugated coil-scrape and plain paddle-and-anvil utility ware. This does not alter my thesis of the Sinagua entry, but rather strengthens it, since corrugated coil-scrape pottery does not enter the Gila Basin. Nor does the presence of corrugated pottery in the Tonto Basin indicate a Saladoan entry there from the upper Little Colorado area as proposed by Gladwin. This is not the place to discuss these detailed aspects of the Salado problem, which will be taken up in a future paper.

In the middle Verde Valley there is a site which further indicates that the compound with rooms abutting the outer wall was later than 1300 AD. It could only have been derived from a source in the Gila Basin. This site, first noted by Mindeleff, is situated on a low flat mesa near the mouth of Clear Creek.[35] It is roughly two hundred feet square and is a compound, the only one known in the middle Verde Valley. Rooms abut the enclosing wall for its entire

34 Schroeder, 1940, pp. 61-62 and fig. 2 (Site 31).
35 Mindeleff, 1896, p. 211, fig. 285.

length on all sides and the center is an open plaza. Only low walls remain.[36] Associated decorated pottery dates after 1300 AD, and is not very abundant. Types represented are Verde Brown (a paddle-and-anvil plainware) which bears a close relation to Gila Plain, Verde Red which is related to Salt Red, a few sherds of Tuzigoot Plain and Red, Jeddito Black-on-yellow, Fourmile Polychrome, and Homolovi Polychrome.[37] Like the sites in the Tonto Basin Gladwin describes, this one is located on high ground but not in a position indicating defense. Until something is known of the ceramic associations within the compounds of the Tonto Basin, one can only assume that all compounds with rooms abutting the outer wall are late (post-1300 AD).

The above discussion of compound walls does not present any tangible evidence which might explain their use and development. None of the sites is geographically located in what one might consider a defensible position. However, if, as has been assumed, the enclosing wall was constructed for the purpose of defense, geographic location would be of minor significance.

An examination into the possible reason for the change from post-reinforced walls to solid caliche walls appears to offer some explanation for the development. The use of post-reinforced walls in the Soho phase might conceivably be the result of the Sinagua-Hohokam blend[38] wherein the Sinagua principle of rubble walls was combined with that of the Hohokam jacal dwelling, modified by a lack of local building stone. On the other hand, there is evidence that the Sinagua had a knowledge of embedding timbers in walls as indicated by excavations in the Flagstaff region.[39] During the Angell and Padre foci (between 1070 and 1120 AD) around the Flagstaff area timbers were embedded in or set against the stone walls of masonry-lined pithouses. This development occurred at a time when the Sinagua were living side by side with Hohokam who had come north from the Verde Valley.[40] Thus, the technique

36 These walls may have been robbed by the first white settlers in the valley who located on the opposite side of Clear Creek in the 1860's. The settlers stated they obtained rocks from a nearby ruin for the construction of their own enclosure which was 60 by 40 feet. See *Pioneer Stories*, 1930, p. 6, and Mindeleff, 1896, p. 260.

37 This site was assigned a Museum of Northern Arizona number NA 4624 by the writer in the course of a survey, 1948-1949. The analysis revealed that the sherds of Tuzigoot Red exhibited a high polish which is not too common prior to 1300, though the type itself dates 1125 to 1400 AD. This material is in the collections of the Museum of Northern Arizona. Verde Red and Tuzigoot Plain are new types, descriptions of which are in preparation (by Schroeder).

38 Schroeder, 1947 and 1952.

39 Colton, 1946, pp. 178-179, 192-193, 198-199, 237-238; McGregor, 1941, figs. 36, 39, 43, 44, 48; pp. 121 and 225.

40 Colton, 1946, p. 311.

of embedding posts in walls was known to the Sinagua prior to their move south into the Verde Valley about 1125 AD and into the Gila Basin about 1150 AD. In the Verde Valley, where little excavation has been undertaken, there is at least one known post-reinforced caliche wall in one of the rooms at Tuzigoot.[41] Since the architecture that appears in the Salt River Valley at 1150 AD is entirely new—house mounds, caliche-walled dwellings without floor post supports, and contiguous rooms: all foreign to the pre-1150 pattern in southern Arizona—it seems that the use of post-reinforced walls also should be considered as an introduced trait, especially since it appears at an earlier date among the Sinagua of northern Arizona, immediately preceding its appearance in the Hohokam area.

In regard to timbers, Font recorded a legend which related that the people (Pima) went to far-off mountains to obtain pines for beams. Velarde in 1716 observed that the Sobaipuri went some distance to obtain beams for their dwellings, being poor in timber locally.[42] The presence of non-local juniper, oak, and pine beams at Casa Grande indicate that there was resort to this practice in prehistoric times. It is obvious that the desert cannot supply much timber, and to obtain the material, the inhabitants were required to go some distance, not necessarily great. As indicated in the foregoing discussions, post-reinforced walls were replaced by solid caliche walls at about the time compound walls were introduced. Coincidentally these architectural changes occurred at about the same time as the drought of 1276 to 1299 AD in the Southwest. It is doubtful that the drought had any direct effect on the change in wall type. The source of timber would have remained the same. However, the drought may have indirectly affected these desert dwellers through the reduction of the flow of water in streams so vital to their practice of irrigation agriculture. This may have brought about concentration and possible friction over water rights, which in turn may have prevented extensive excursions for timbers.

The evidence is not conclusive, but several factors indicate that the drought of 1276 to 1299 had considerable affect on the Salt River valley and probably the Gila as well. Hayden recorded Civano phase forts located at canal heads, which would seem to suggest that strife of some sort was occurring.[43] He also suggested that water-logging became a definite problem, as indicated by the salt erosion evident at the base of Civano phase walls. Since water-logging apparently reached a climax coincidentally with the drought, the land situation also would

41 Caywood and Spicer, 1935, p. 25.
42 Fewkes, 1912, p. 43; Wyllys, 1931, p. 127.
43 Hayden, 1941, p. 228.

have been involved, along with the water supply, in this time of apparent stress. As a result, of necessity, the most saline and non-productive farmlands would have become a problem. The concentration of population and the loss of farmland, which could not be replaced with new fields during a period of drought, undoubtedly caused an unbalance which led to strife among the villages. If such events took place, friction between the villages would have restricted or prevented long excursions for timbers with which to reinforce walls. Admittedly this is all speculative, but high defensive compound walls may thus have been erected as a direct result of internecine warfare.

The Pima told Russell that when the Gila failed in historic times, they resorted to hunting and gathering.[44] It is probable that the prehistoric inhabitants followed a similar pattern to a certain extent when water-logging first became a problem. The apparent decrease in luxury items and associated tools and the increase in utilitarian and hunting artifacts during post-drought times, as revealed in Civano phase trash deposits,[45] indicates that a greater stress actually was placed on hunting and gathering, perhaps as the result of the breakdown of intensive irrigation agriculture brought about by the drought and water-logging. However, if the situation became severe, as it apparently did, many of the displaced farmers must have left the valley, since the area could not have supported a large hunting and gathering economy.

Hayden has indicated that the house mound and post-reinforced walls at the University Ruin near Tucson were constructed close to 1300 AD,[46] over one hundred years after these traits first appeared in the Salt River valley. The displaced farmers from the Phoenix area may have moved up the Gila and Santa Cruz rivers during the drought to introduce their Soho phase culture to more easterly areas such as Tucson and possibly Solomonsville.

If a number of people left the valley, as is postulated above, some of the local tension must have been relieved. The very fact that some structures were built without enclosing walls in the Civano phase, as deduced herein, would indicate that the cause of the strife or unbalance had been removed, at least for short intervals of time. In further support of the conception of decreased strain are the terraced farms, recorded by Hayden at the foot of South Mt. and Camelback Mt. near Phoenix, with Civano phase plainware. Hayden suggested that there was resort to these sites when water-logging became a problem in the

44 Russell, 1908, p. 66.
45 Schroeder, 1952, p. 326.
46 Hayden, 1941, pp. 236-237.

Civano phase.[47] Since these terraces are far removed from the village sites, it seems, in view of the associated ceramics, that perhaps they were first employed after the drought, during periods of relative peace when one could travel some distance from a village in comparative safety.

The situation as implied by these discussions is one wherein drought and water-logging brought about local stress in the late 1200's resulting in concentration within compounds as well as some dispersal out of the valley at the same time. The emigration gradually removed the cause of local friction, allowing the inhabitants to build without the protection of compound walls and to farm at the base of distant mountains. The presence of post-reinforced dwellings on top of house mounds at Pueblo Grande, representing the last structures erected, further indicate that conditions were such to allow the natives to obtain timbers again. The occurrence of forts at canal heads, the continued occupation of the compounds, the swing to utilitarian artifacts during the Civano phase, however, manifest that there was no "return to normalcy"; that the situation was not what it had been prior to the drought, and that the economy probably still was unstable.

Hayden's evidence at Pueblo Grande led him to the conclusion that the final breakdown of the Civano phase was gradual. He mentioned the deposition of rubbish and the accumulation of wash in the compound and on the mound during late occupation, the abandonment of room after room as fill and salt erosion rendered them uninhabitable, and the burning of many late rooms. He considered these conditions as pointing to a decrease in population and steady deterioration of morale. He considered progressive water-logging and, to emphasize its serious nature, expressed the possibility that soil puddling may have occurred so rapidly that it alone may have brought about the final abandonment of the Salt River valley.[48] It must be admitted that these circumstances would have caused considerable unbalance in a concentrated population.

Another type of architecture of the Civano phase, not discussed above, is represented by the "big house" or multi-storied structure at Casa Grande. Ever since Kino first visited this site in 1694, there has been speculation concerning its origin. The Spaniards considered the site a stopping place for the Aztecs during their travels south to the valley of Mexico. The Casas Grandes of Chihuahua were similarly explained. The most recent theory, proposed by Gladwin, attributed the big house itself to the Salado people, who he con-

47 *Idem*, pp. 148-149. Bandelier recorded a similar practice among the Pima, Opata, and Maricopa in historic times (Bandelier, 1892, p. 17).

48 Hayden, 1941, pp. 194, 228, 242; 1945; Breazeale, 1939.

sidered to have entered the Gila Basin about 1300 AD. Since it is the contention of this paper that the Salado people did not actually enter the area, some other explanation must be presented to account for this type of multi-storied structure in the Gila Basin, where it did not exist before the Civano phase.

In order to arrive at any conclusion it is necessary first to determine the chronological development of architecture at the site of Casa Grande. Foregoing discussions have indicated that house mounds were constructed during the Soho phase. In checking the compounds at Casa Grande one finds Compound B is the only one to contain house mounds, on which basis it can be considered as the earliest nucleus of the Classic Period village. It also has been noted that post-reinforced walls were a feature of the Soho phase; such walls have been found in Compounds B and C. Compound A revealed solid wall construction of the Civano phase on the surface. However, during 1926 and 1927, while the National Park Service was conducting clean-up and repair work on the northeast building of Compound A, post-reinforced walls were found beneath the floors of two rooms.[49] These had been leveled by the Indians for the construction of the northeast building. Thus all three compounds had their beginning in the Soho phase, at which time village B (not yet a compound) contained two house mounds and C and A were clusters of post-reinforced dwellings on the desert flat. Gladwin's operation 1 at Compound B and operations 2 and 3 at Compound A further indicate that B had an earlier beginning than A, on the basis of the pottery associated in the respective trash mounds,[50] which in turn supports the architectural chronology, the house mounds being early.

On the basis of data presented above it would seem that the house mounds of B were enclosed by compound walls near the end of the Soho phase (1275-1300 AD) and the post-reinforced dwellings of A and C were also thus enclosed. Following this, solid-walled houses of the Civano phase were erected against and within the compound walls, in a haphazard fashion, and also on the house mounds. At this time all three compounds presented a similar appearance except for the presence of the house mounds in B. By the close of the Civano phase, all were still in the same state except for Compound A. Two new features had been added—the compact buildings and multi-storied structures.

Several factors indicate that both of these types of construction in Compound A were late. Gladwin's operation 3 was a test in a trash mound, associated with Compound A, which contained the latest pottery at Casa Grande. In addition, the presence of a sherd of Jeddito Black-on-yellow (post-1325)

49 Pinkley, 1936.

50 H. S. Gladwin, 1928, pp. 12, 20; see also Schroeder, 1952, p. 325, Table 6.

under room K of the compact northeast building, which was superimposed on post-reinforced structures, provides another relatively late beginning date for compact dwellings. The already mentioned non-eroded wall of a room in Compound A, which extended into the eroded portion of an earlier wall, evidently may have been one of the last walls constructed within the compound, since evidence of salt erosion after its construction is lacking.

Whether the multi-storied buildings were constructed around 1325 AD or much later is not known, and there is little evidence to support any specific postulated time of construction within any given period of the Civano phase. Such structures are found in the Gila Basin only at Casa Grande and Adamsville. The rarity of such architecture may mean that circumstances did not permit other villages to copy the idea before the end of the Civano phase. Perhaps by this date only Casa Grande and Adamsville contained a population sufficient in number to provide the labor necessary for the construction of such a large building.

The only other area to exhibit similar architecture is the Chihuahua desert, where a few sites reveal evidence of caliche-walled structures of more than one story. These have been placed in the Ramos phase, which is tentatively dated after 1300.[51] Possible contact between Casa Grande and northwestern Chihuahua has been demonstrated. Gila and Tonto Polychrome sherds have been found at Casa Grande and at the University Ruin, Tres Alamos, and other sites.[52] However, aside from ceramics, there is no other evidence of contact between the Gila Basin and Chihuahua. In all probability there was no actual contact, the exchanged pottery types having been transmitted to each area by the intermediate peoples of the San Pedro drainage. Moreover, the Gila and Tonto Polychrome sherds intrusive in Chihuahua occur in association with the Animas phase, not the Ramos phase which contains the big houses. In any case, the general *patterns* of culture and specific traits in the two areas differ, so one cannot postulate actual movements of people. In Chihuahua one finds flexed burials, scraped pottery, abundant polychrome pottery, and other traits after 1300 AD; while in the Gila Basin, inhumations were extended and cremation was also practiced, pottery was finished by the paddle-and-anvil technique, and decorated pottery was negligible in quantity and of entirely different styles of decoration and form. The pattern of traits of southern Ari-

51 Sayles, 1936, p. 30. Bandelier noted, at the foot of the Sierra Madre, ruins that had been buildings of caliche, often many storied (Bandelier, 1892, pp. 540, 545).

52 W. and H. S. Gladwin, 1929, p. 29, plate V; Hayden, 1941, p. 163; Tuthill, 1947, p. 56; Vickery, 1939.

zona does not exist as a unit in Chihuahua and in no way supports Gladwin's postulation of a Saladoan move from the Gila Basin to the Chihuahua desert.

Pima legends indicate that the end date for Casa Grande was slightly earlier than that of other sites in the Gila Basin. Bandelier was told by them that at one time Casa Grande was beset from the east by enemies in several bodies. Other settlements were later abandoned due to inter-tribal conflicts.[53] In support of the sacking of Casa Grande we have Mange's and Font's observations that burned roofs were in evidence in the houses around Casa Grande.[54] Hayden also referred to a room in Compound F which had burned and in which were the bodies of two persons who had apparently met violent death.[55] Russell recorded another legend which stated that after Casa Grande was abandoned, other communities fell in order to the west.[56]

These traditions agree that Casa Grande fell first and that the pressure was from the east. If, as legend indicates, Casa Grande fell first, it is possible (assuming the big house style of architecture was late Civano in time) that neither time nor circumstances were such as to allow other villages to construct similar multi-storied buildings before they also fell.

In summary one can only state that the big house was probably the last form of caliche-walled construction in the Civano phase. Since multi-storied architecture probably was known to the inhabitants of the Gila-Salt valleys, through contacts with either the Sinagua of the Verde Valley or the Salado around Globe and to the east, there is no reason why this type of caliche-walled multi-storied architecture could not have been developed locally.

The last evidence of occupation in the Salt River valley was on top of Pueblo Grande where Hayden and later Jewell encountered rectangular structures with post-reinforced walls.[57] A late dwelling uncovered at Casa Grande, the floor of which was excavated into the debris of a collapsed massive compound wall, was a Sacaton phase-type house.[58] Thus it seems that the Hohokam style jacal dwellings survived throughout the entire Classic Period.

The lower Salt River valley was abandoned prior to the coming of the Spaniards, and it was not until 1878 that any other Indians were recorded in the area. In speaking of the Pima on the Gila River at this time it was said: "The Indians were therefore driven to the necessity of seeking other lands

53 Bandelier, 1892, pp. 463-464.
54 Bolton, 1948, vol. 1, p. 129; Bandelier, 1892, p. 456; Coues, 1900, p. 96.
55 Hayden, 1941, p. 240.
56 Russell, 1908, p. 25.
57 Hayden, 1941, p. 227; Jewell, 1949.
58 Hayden, 1941, p. 227.

TABLE 1

Architectural traits in the Hohokam Classic Period

Trait	*Phase*		
	Sacaton 900-1150 AD	*Soho 1150-1300 AD*	*Civano 1300-1400 AD*
Jacal	Only house type	Minor type	Minor type
House mound	Absent	Erected in center of village. Few dwellings on top	None built but more dwellings erected on top
Contiguous rooms	Absent	Present	Present
Post-reinforced walls	Absent	Common type of construction	Occasionally used
Solid caliche walls	Absent	Used in retaining walls of house mounds and sometimes in houses late in phase	Common type of construction
Roof support posts	Two	None except in jacals	None except in jacals
Roof type	Gabled?	Flat, except in jacals?	Flat, except in jacals?
Compound walls	Absent	Erected late in phase around existing house mounds and clusters of dwellings	Erected early in phase and dwellings built within
Courtyard dwelling	Absent	Rare, late in this phase	Absent
Compact dwelling	Absent	Absent	Present

TABLE 1

Architectural traits in the Hohokam Classic Period

	Remarks
Pithouse	Typical and only dwelling of the Hohokam prior to 1150 AD.
Surface dwelling	Introduced around 1150 AD by the Sinagua who, after accepting masonry architecture in the north, always erected their dwellings on an elevation.
Adobe	Introduced by the Sinagua around 1150 AD.
Caliche	Developed after the arrival of the Sinagua who in the north, prior to 1125 AD, embedded poles in their masonry pit house walls.
Rock	A local development probably brought about, during the drought of 1276-1299 AD, by intervillage strife which restricted travel to distant mountains for timber.
Contiguous rooms	Only occasionally found in contiguous roomed dwellings (post-1150 AD) but not in any pattern.
Gabled roofs	Gabled roofs have been postulated for the jacal houses of the Hohokam, though flat roofs may have been employed.
Compounds	Probably erected during the drought and shortly thereafter, when intervillage stress, perhaps over water rights, developed. Introduced into the Verde valley to the north after 1300 AD.
Courts	May be related to the boulder sites of the Verde valley of the same period or the earlier Cohonina ruins around Flagstaff, which exhibit courts.
Walls	Probably erected after the drought when intervillage tension eased. Perhaps introduced from the Verde valley where puebloan type structures were in use prior to this time.

to cultivate, or to obtain employment elsewhere to save themselves . . ." (from a lack of water for their farmlands due to the settlers taking considerable quantities out of the river above their canal intakes). "Large numbers of them were compelled to cultivate lands on Salt River and in other portions of the Territory."[59]

A summary of the architectural developments discussed herein reveals that the house mound overshadowed the jacal pattern of the Hohokam, sometime after 1150 AD, to become the nucleus of the Classic Period villages. Jacal structures and post-reinforced dwellings were erected alongside one another on top of the house mounds and on the desert flats below. The villages were open and somewhat scattered. Near the close of the Soho phase—perhaps coincidentally with the drought of 1276-1299 AD—during the Soho-Civano phase transition, massive compound walls were constructed around existing village clusters on the desert floor and around the house mounds. Solid-walled house structures were erected on and about the enclosed house mounds and over post-reinforced dwellings. As the need for more units was felt, additional compound walls were erected nearby and rooms were built against and within the walls of the compound. During times of relative peace that followed, after 1300, compact buildings were built without enclosing compound walls, and perhaps at the same time multi-storied buildings were erected. The last form of architecture to survive seems to have been the jacal, which persisted throughout the Classic Period. The accompanying table summarizes in brief the developments discussed in this paper.

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59 Stout, 1878, p. 3, and Indian Commissioner to the Secretary, p. xxxix.

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NATIONAL PARK SERVICE
SANTA FE, NEW MEXICO

KIOWA APACHE CULTURE HISTORY: SOME FURTHER OBSERVATIONS[1]

CHARLES S. BRANT

IN AN EARLIER PAPER[2] I brought together data from the literature and from my own fieldwork bearing upon the cultural history and relationships of the Kiowa Apache. At that time, I confined my discussion largely to comparison of the Kiowa Apache with the Apachean peoples of the Southwest to show the impressive similarities in that direction. It remained, however, to make other relevant comparisons in order to arrive at any firm conclusions on Kiowa Apache history, and it is these further comparisons with which I am here concerned.

I

The first additional comparison that must be made is between the Kiowa Apache and the Kiowa. Since Mooney assumed, but never demonstrated, that the Kiowa Apache are "a part of the Kiowa in everything but language,"[3] we shall attempt, insofar as comparable cultural materials make it possible, to examine critically this position.

First, let us consider kinship. The terminological data for the Kiowa are not entirely clear and are incomplete, so that the Kiowa kinship system cannot be compared with the Kiowa Apache system in all respects. Moreover, data concerning behavior between relatives are almost entirely lacking for the Kiowa.

Like the Kiowa Apache, the Kiowa system of relationships employs self-reciprocal terminology between grandparents and grandchild. But unlike the Kiowa Apache, there is an additional term which is used only between maternal grandparents and their grandchildren.

Although the Kiowa classify the father's sister's husband with the mother's brother, as do the Kiowa Apache, they do not follow the Kiowa Apache custom of classifying father's brother's wife with mother's sister.

1 This paper was presented, in slightly different form, at the annual meeting of the American Anthropological Association at Philadelphia, Dec. 28-30, 1952. It grows out of fieldwork supported by the Wenner-Gren Foundation for Anthropological Research, to which grateful acknowledgment is hereby made. Thanks are also due M. E. Opler for valuable advice and criticism of the research and writing of which this paper is a partial product.

2 Charles S. Brant, *The Cultural Position of the Kiowa-Apache* (Southwestern Journal of Anthropology, vol. 5, pp. 56-61, 1949).

3 James Mooney, "Kiowa Apache" (in *Handbook of the American Indians*, Bulletin, Bureau of American Ethnology, no. 30, part 1, pp. 701-703, 1907).

The Kiowa Apache distinguish siblings according to relative age and extend age distinction to cousins. The Kiowa do not follow these practices.

Among the Kiowa Apache, personal names were never used between husband and wife. Instead, kinship terms were employed, with more affectionate secondary usages, but *not* personal names, reserved for private situations. But among the Kiowa, husbands and wives used personal names freely. Indeed, among the Kiowa, the general use of personal names in addressing a variety of relatives has led Lowie to single this out as a noteworthy feature "otherwise so rare among primitive peoples."[4]

We now turn to folklore. Among the Kiowa Apache the culture heroes are called Fire-Boy and Water-Boy. The exploits of these mythical twins resulted in the destruction of the enemies of the people. The Kiowa Apache conception of the qualities and deeds of the heroes bears a very close similarity to those of the Lipan and Jicarilla Apache. Varying versions of the same mythology are found among the other Apachean tribes.

Among the Kiowa, these characters are entirely absent in the mythology. Parsons[5] has recorded a tale of ritual origin involving what the Kiowa call Split-Boys. This story, however, has nothing in common with that of the Kiowa Apache concerning Fire-Boy and Water-Boy, either in the origin of the heroes or their activities.

The Kiowa have a trickster figure in their folklore who engages in many adventures that are very similar to those of the Kiowa Apache figure, Coyote. The stories serve to underscore cultural values and proper behavior, much as do the Kiowa Apache tales of Coyote, by emphasizing the trickster Sendeh's undesirable traits of greediness, irresponsibility, and cunning. But as Parsons points out "Sendeh is never in any way thought of as a Coyote or as an animal-being, although he may change himself into animal at pleasure . . . ."[6] The similarities in the tales, however, suggest that the Kiowa and Kiowa Apache during their long period of association influenced each other's mythology.

Another line of comparison is ceremonial organization. Among the Kiowa Apache there were four ceremonial groups: a children's society, two adult male societies associated with war and raiding, and one old women's society. Among the Kiowa, in addition to the children's society—a feature probably

4 Robert H. Lowie, *A Note on Kiowa Kinship Terms and Usages* (American Anthropologist, vol. 25, pp. 279-281, 1923), p. 280.

5 Elsie C. Parsons, *Kiowa Tales* (Memoir, American Folklore Society, no. 22, 1929), pp. 1-9.

6 *Idem*, p. xvi.

borrowed wholesale by the Kiowa Apache when they joined the Kiowa—there were five adult male societies and two women's societies. The Kiowa Apache ceremonial societies were a weak development in comparison to those of the Kiowa, in terms of numbers of societies and of participation and interest in them.

Among the Kiowa Apache shield-groups were known to a much lesser extent than among the Kiowa. An individual dreamed of a shield of a certain kind and was instructed by a supernatural power how to decorate one like it. Seven shields of each type revealed could be made. And the men who owned the shields of a given type, who were usually in the same family line but not necessarily so, formed a ritual shield group. It is significant that McAllister found "information on these associations is disappointing in comparison to the material available from the Kiowa and other Plains tribes, undoubtedly because the groups were not, or at least appear not to have been very important among the Apache."[7]

II

We shall now examine the claim that the Kiowa Apache had a northern origin and that their cultural ties lay with the northern Athabascan Sarsi, as the Kiowa Apache themselves have become inclined to believe, probably more because of Mooney's ideas than for any other reason. As in the case of our comparisons with the Kiowa, limits are imposed because of the incompleteness of the material for the Sarsi. In several respects, however, comparisons are possible.

Our first point of comparison will be material culture. The Sarsi, like the Kiowa Apache, apparently moved to the Plains after obtaining horses and from that time onward rapidly adapted to Plains patterns of material culture. They dwelled in tipis, relied heavily on the bison for food, materials for clothing and shelter and for various implements and weapons. They led a nomadic life. Since in both tribes the material culture represented adaptation to a shift to Plains existence and supplanted whatever the earlier material culture was, comparison of material culture are not especially helpful for the problem at hand. However, it is worth pointing out here that pottery was known among the Sarsi about one hundred years ago and possibly later.[8] Among the Kiowa Apache, there is no tradition whatsoever of pottery manufacture. All informants explicitly deny that the tribe ever knew anything of pottery.

7 J. Gilbert McAllister, *Kiowa Apache Social Organizations* (Ph.D. thesis, University of Chicago, 1935), p. 17.

8 Edward Sapir, *A Note on Sarcee Pottery* (American Anthropologist, vol. 25, pp. 247-253, 1923), p. 248.

With reference to kinship, there are a number of respects in which the Sarsi differ from the Kiowa Apache. First, their system does not employ self-reciprocal terminology in the grandparent-grandchild relationship, as does the Kiowa Apache system. Second, in the first ascending generation the Sarsi used distinctive terms for parents, without extension to other kin, with a single exception—mother's sister is merged with mother. Among the Kiowa Apache, the term for "mother" is extended to her sisters and to father's brother's wife. The term for "father" is extended to his brothers and to mother's sister's husband. Third, the Sarsi system overrides the generation principle in two places. All uncles and aunts, excepting the mother's sister, are merged with older siblings. All nephews and nieces are merged with younger siblings. When nephews and nieces are very much younger than ego, they are merged with son and daughter.[9] The Kiowa Apache system by contrast observes the generation principle without exception.

As regards social and ceremonial organization,[10] we may note first that the Sarsi tribe was divided into a number of bands, each with its own chief. A girl was considered to belong to her mother's band, while a boy, after nine or ten years of age, was regarded as a member of his father's band. The father's band was then responsible for the boy's training. Neither band organization nor any tendency toward lineage preferences was known among the Kiowa Apache. The Sarsi dancing societies appear to have been better organized than those of the Kiowa Apache and functionally more important. There seems to have been far greater elaboration of concepts and practices associated with medicine bundles than among the Kiowa Apache.

The one significant comparison which we can make from the field of mythology concerns the myth of the twin culture heroes. As we have pointed out elsewhere in a comparison of Kiowa Apache with other Apache mythology,[11] the similarities are greatest between the twin culture heroes story of the Kiowa Apache and those of the Jicarilla and Lipan. The Sarsi version shows important differences.

In considering religion, let us note that among the Sarsi, as among the Kiowa Apache, there were two general modes of obtaining supernatural power: (1) the

9 Diamond Jenness, *The Sarcee Indians of Alberta* (Bulletin, Canadian Department of Mines, vol. 90, 1938), p. 24.

10 Jenness, *op. cit.*, p. 18; E. S. Curtis, *The North American Indian* (Cambridge, 1928), vol. 18, p. 102.

11 Brant, *op. cit.*, pp. 58-59. A more detailed account may be found in my study *The Kiowa Apache Indians: A Study in Ethnology and Acculturation* (Ph.D. thesis, Cornell University, 1951).

active vision quest involving isolation and fasting, and (2) the acquisition of power by a vision that occurred in dreams. The question is one of emphasis. Among the Kiowa Apache, the latter mode seems to have been much more frequent and important. The opposite emphasis is suggested for the Sarsi. Curtis has written that among the Sarsi "visions sometimes, but not usually, were received by individuals in trouble but not actually seeking supernatural help. Mostly the power was deliberately sought in a place suspected of being the abode of a spirit—a high hill, an overhanging bank above a dark pool, a remarkable rock, a lonely lake."[12] The procedure involved the typical Plains habits: remaining four days and nights in isolation, fasting and abstaining from drink, and prayer.

As regards the life cycle, suffice it to note here that in every aspect—pregnancy and birth, naming, marriage customs, and death—there are remarkable divergences between the ways of these two peoples. A particularly significant divergence is the fact that after a funeral, the Sarsi could enter the dwelling of the deceased and help themselves to his belongings which were laid out there. Among the Kiowa Apache, anything associated with death was scrupulously avoided and, in aboriginal times, belongings of the deceased person were destroyed. The purification of mourners by smoke and the avoidance of mentioning the name of the deceased in the presence of his relatives are traits common to Sarsi and Kiowa Apache. But nowhere in the literature on the Sarsi is there anything that suggests the feeling of horrror and fear about death and things associated with death that is so very marked among all Apachean peoples. It seems unlikely that all observers could have failed to note such a complex if it were present in Sarsi culture.

III

The preceding discussion is indicative of differences in many respects between the Kiowa and Sarsi, on the one hand, and the Kiowa Apache, on the other. Our comparison of Kiowa Apache culture with Southwestern Apachean cultures, however, has brought to light numerous impressive similarities.[13] The older view based on nothing more than assumption and declaration that the Kiowa Apache are a "typical Plains tribe" or that their origin lies with the northern Athabascan peoples not only cannot be substantiated, but the evidence cited definitely controverts it. We have shown insofar as demonstration is possible by comparative methods, that Kiowa Apache culture is historically derived

12 Curtis, *op. cit.*, p. 112.
13 Cf. footnote 2, above.

from that of the Apache of the Southwest. More specifically it is a species of the easternmost variety of Apache culture, very closely related to that of the Jicarilla and Lipian tribes. We have shown further that the Plains traits in Kiowa Apache culture were superficial and probably recent accretions to the basic Apache substratum.

At this point we must face the question how, when, why, and from where did the Kiowa Apache come to the southern Great Plains? In the nature of the question no answer can be more than inferential though the historic and prehistoric evidence be strong.

Here we may cite the views of Kroeber[14] and Spier[15] that the Kiowa Apache were a group living marginal to the southern Great Plains in the late 17th century, who after getting horses, probably moved to the Plains owing to pressure from the powerful Comanche tribe in the early 18th century. We know from the historians, Thoburn and Wright,[16] and from Mooney's historical map based on written sources,[17] that the Kiowa Apache traveled with the Kiowa southward to their present habitat beginning about 1780. How can we account for the Kiowa Apache between these dates, that is, between the time of their presumptive movement to the Plains in the early 18th century and 1780?

Recent archaeological investigation in the Plains area has brought forward evidence of a cultural horizon that has been termed "Dismal River."[18] Two sites have been discovered, one in southwestern Nebraska (Chase County) and the other in west central Kansas (Scott County). This culture has been characterized as Puebloan with a semi-sedentary mode of life. The economy seems to have been primarily based upon hunting, secondarily upon agriculture. Chronologically, Dismal River is dated between about the last two decades of the 17th century and the early years of the 18th. The Kansas dating is based upon comparison of pottery types with those in other sites of known

14 A. L. Kroeber, *Cultural and Natural Areas of Native North America* (University of California Publications in American Archaeology and Ethnology, vol. 38, 1947), pp. 36-37, 47-48, 79-80.

15 Personal communication, Dec. 27, 1948. Concerning the location of Apachean peoples in this period, see A. B. Thomas, *Forgotten Frontiers* (Norman, Oklahoma, 1923), p. 58 et seq., and the same author's *After Coronado* (Norman, Oklahoma, 1935), esp. p. 22 et seq. and p. 263, note 13. This information is based on 18th century Spanish documents.

16 Joseph B. Thoburn and Muriel H. Wright, *Oklahoma, a History of the State and its People* (New York, 1929), vol. 1, p. 25.

17 James Mooney, *Calendar History of the Kiowa Indians* (17th Annual Report, Bureau of American Ethnology, part 1), p. 248.

18 Waldo R. Wedel, *Culture Chronology in the Central Great Plains* (American Antiquity, vol. 12, pp. 148-156, 1947).

date, while the site in Nebraska is dated by the almost exact method of dendrochronology. The Puebloan aspects of Dismal River cultural remains have been suggestively attributed to the influence of Pueblo groups fleeing from Spanish oppression in the south. Linkages are suggested to known movements into the Plains in the late 17th and early 18th century. To quote Wedel, who has written on Dismal River culture in this historic context:

> It has been suggested tentatively that the occupants of the Dismal River site may have been the Paducah, in turn variously identified with Comanche or Apache. From the Spanish records, it appears that various Apache bands were scattered over the high Plains north and northeast of the Upper Rio Grande during the 17th and 18th centuries. The Comanche on the other hand arrived in the region about 1700. By 1750 their incessant raids had driven the semi-sedentary Apache peoples southward nearer the Pueblos. Thus on historical evidence, it appears by the mid-18th century semihorticultural, pottery making peoples no longer found the high Plains north of the Arkansas a safe habitat and this accords nicely with the archaeological finds. A beginning date for the Dismal River occupancy is conjectural but the sites now known probably fall in the period from about 1600 or 1650 to 1725 or 1750.[19]

But we have no evidence whatever from ethnological data that the Kiowa Apache ever made pottery or practised agriculture in any form. It is conceivable that these traits were rudimentarily developed, subsequently lost in the vicissitudes of more recent Kiowa Apache life on the Plains. But this seems improbable. Although these archaeological data accord rather neatly in a temporal sense with historical knowledge and are certainly suggestive, it seems very doubtful that the Kiowa Apache were among the Dismal River people, because they lacked such important features of the Dismal River culture as agriculture, pottery, and roasting pits. It seems more likely that the Jicarilla Apache were among the Dismal River people, since they developed some agriculture, knew the art of making pottery, and in many respects bore resemblances to Pueblo culture. Many of the Apache tribes had moved plainsward to some extent. The eastern Jicarilla had definitely moved quite far in the Plains direction and had taken on many features of Plains life in the realm of material culture, as Opler has pointed out.[20] The Kiowa Apache on the other hand appear to have committed themselves to the Plains before Puebloan influences could affect them. Quite possibly the known Comanchean movement southward in the early 18th century cut the Kiowa Apache off from other Apache living marginal to the Plains,

19 *Idem*, pp. 151-152. The writer is indebted to G. P. Murdock, Yale University, for first calling his attention to this material.

20 Morris E. Opler, *A Summary of Jicarilla Apache Culture* (American Anthropologist, vol. 38, pp. 202-223, 1936).

while it forced the Jicarilla Apache to retreat to the northern New Mexican highlands and the Lipan Apache to move southward toward the Texas gulf territory.

If it be granted that the Kiowa Apache movement to the Plains took place in these general circumstances, we can assume that their subsequent history, judging from documentary sources, consisted of joining the Kiowa, moving about the Plains a great deal in the 18th century and then, in the late 18th century and 19th, moving southward to the area they have occupied since.

University of California
Berkeley, California

AREAS AND INSTITUTIONS IN EASTERN ASIA[1]

ROBERT J. MILLER

THE SERIES OF ARTICLES on culture areas in Asia which appeared in earlier issues of this journal[2] raised a series of questions, primary among them being the methodological one. How are we to define areas, cultural or other, in Asia? Can we validly break down or map Asian cultures according to the traditional culture area scheme? What are to be taken as the important factors in attempting such a classification? And finally, what are we to do with documented historical developments in the areas? In examining these questions, I will attempt to suggest some answers and to pose other problems. In this attempt I have divided my discussion into two parts: I. Theoretical Considerations, and II. The Tibeto-Mongolian Institutional Area.

I. THEORETICAL CONSIDERATIONS

A culture area is presumably established on the basis of evaluation of cultural wholes. Such areas as have been established, however, seem primarily to have taken into consideration economic organization, material culture and technology, ecology, and to a somewhat lesser extent, social organization. A tacit understanding exists that such areas as are accepted are basically applicable only to particular "ethnographic presents." In practice this unwritten rule is rarely considered. Because of a tendency toward the acceptance of an area, once established, as valid for all time, the changes in a culture through time are somewhat glossed over. Where time has been considered, aspects of culture have been so abstracted as to make them applicable over millenia. For example, Bacon sweeps from the second millenium BC to recent times in drawing up her areas in Asia. Patai has shown that even such a concept as "nomadic herding" has variations within it which set off one type of nomadic herders from another. This raises important problems when one attempts to classify all nomadic herders together into a "Steppe" or "Pastoral Nomadic" culture area, particularly over long periods of time.

1 Portions of this paper were presented at the meeting of the American Anthropological Association in Philadelphia, December 29, 1952.

2 Elizabeth Bacon, *A Preliminary Attempt to Determine the Culture Areas of Asia* (Southwestern Journal of Anthropology, vol. 2, pp. 117-132, 1946); A. L. Kroeber, *Culture Groupings in Asia* (*idem*, vol. 3, pp. 322-330, 1947); Raoul S. Naroll, *A Draft Map of the Culture Areas of Asia* (*idem*, vol. 6, pp. 183-187, 1950); Raphael Patai, *Nomadism: Middle Eastern and Central Asian* (*idem*, vol. 7, pp. 401-414, 1951).

But it has also been argued that to introduce the temporal aspect into the culture area scheme is to destroy its sole purpose, that of presenting a flat, mapable picture of the cultures prevailing in an ecological area. The question I would pose here is precisely relative to this problem. What can we do with the changes that take place in cultures over a given period of time? Where we have the documentation, as for most of Eastern Asia, can we present one time picture of "Asian Culture Areas" and let it go at that? In this area, certain social institutions (Kroeber's "political-religious-lettered culture") have become more important (in some periods) than the material culture in defining "who goes with whom." Can we, in these cases, rest content with a classification which assigns such institutions to an equal place with house type or "original" economy? If one ignores its socio-economic ramifications, it is not hard, for example, to relegate such an institution as the Lamaist church to a classificatory pigeonhole named Religion. This we may then give only equal weight with Economic Organization, Material Culture, etc. But where an institution becomes so pervasive that its influence and effects penetrate into every other aspect of life, must we not give it much more than equal weight in finding our equatable items?

In Asia I contend that we must necessarily consider time and the changes which can be documented when we draw up any sort of area. We should be concerned with what have been called "dated distributions," and begin to look more closely at the institutional influences in Asian cultures. We must see the aspects of culture from the standpoint of their effects in the total culture before we assign any trait a defining place in our scheme. We should, by all means attempt to map culture areas in Asia for the earliest periods possible, so as to see our changes in the proper perspective. However, as a more immediate heuristic device we can map what I have called "Institutional areas." These might throw some light on the changes which have been brought about through institutional influence, pulling various peoples in Asia out of their "natural" orbits culturally, and placing them in new groupings which may or may not be coincident with "culture areas."

As an example of such an institutional area, I have chosen to present the Tibeto-Mongolian Area. The picture here shown is of two groups which in economic, technologic, and sociologic aspects have many fundamental divergences, but which for a limited period of time were brought together by the combined forces of conquest, diffusion, and incorporation into a religious-political world system. This resulted in an overall cultural picture within each group which was remarkably similar in many respects. During the period between 1500 and 1900 AD the aspects of culture shared by the Tibetans and Mongolians far outweighed the differences between them. Conversely, the aspects of culture shared by each

with the other peoples in Asia were not great enough, it is my contention, to warrant separating them on the basis of this or that trait. In other words, in terms of the culture areas of Asia, both Tibet and Mongolia may well fall into two distinct spheres. But for the purposes of seeing the historical realities in the areas inhabited by these peoples, we must consider the institutional area to be of more significance.

It is possible that the blocking out of institutional areas will lead to a reassessment of Asian culture areas as heretofore defined, and to the conclusion that at certain times various institutions can be taken as the cultural foci against which the importance of other elements of culture must be evaluated. It is also possible that institutional areas may become a more functional tool in the interpretation of events in Asian culture history than has been the case with the unmodified application of the culture area approach.

II. THE TIBETO-MONGOLIAN INSTITUTIONAL AREA

A. Limits of The Area

With the exception of an extension east of Lake Baikal, the Tibeto-Mongolian Institutional Area is defined by the northern boundaries of present-day Outer Mongolia (excluding Tannu-Tuva, the old Uriangkhai); then a line on the east running parallel to the Khalkhin River into Manchuria, turning south near Tsitsihar and running somewhat east of Mukden; swinging west along the southern boundaries of Inner Mongolia, along the Great Wall to Ninghsia; roughly following southward the political boundary between China and the mixed Tibetan and Mongolian regions of Ch'inghai and Hsi-k'ang; continuing west and northwest along the Himalayas to Leh, turning northward to the Kun-lun and Altyn-Tagh ranges; following to the east the rim of the desert of Taklamakan over to Lop-nor; the line then continues east along the Nan-Shan range, down to the area about Kanchou in Kansu; then sweeps northwestward along the line of the Altai mountains, joining the northern boundary as previously described (Fig. 1).

These boundaries have remained quite stable during the period under investigation, but with slight alterations due to changing political fortunes. They are not to be taken as sharp-line boundaries, however, but to be looked at as broad transitional bands between the bounded area and the surrounding groups. Within the bounded area live the following:

a) Khalkha, or Eastern Mongols and Southern Mongols of various "banner" names, calling themselves "Mongol."

b) Shera Yogurs, Sanch'uan, Santa, called T'ujen by the Chinese, and calling themselves Monguor.

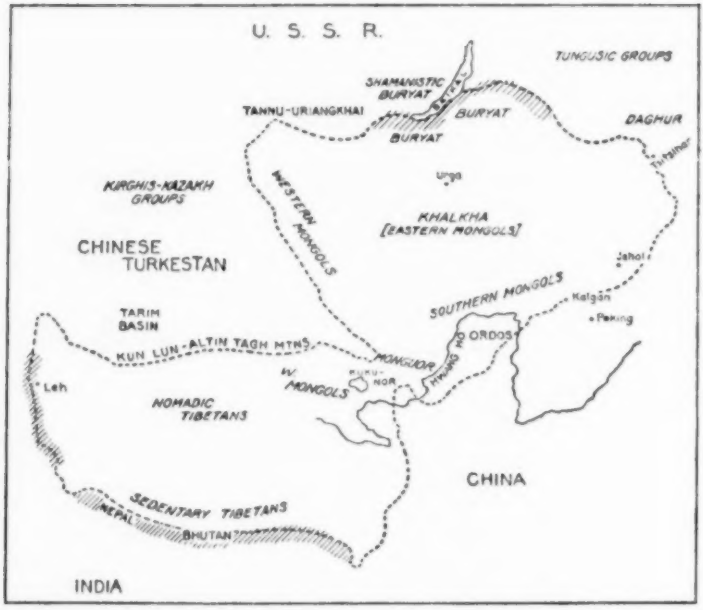

FIG. 1. Generalized limits of the Tibeto-Mongolian (Lamaistic) Institutional Area. (Transitional zones are shown by shading.)

c) Western Mongols, or the "Durben Oirat," inhabiting the western portion of the Mongolian area and with various branches in the Kokonor region of Ch'inghai.
d) Nomadic Tibetans, Ngoloks, etc.
e) Sedentary Tibetans.

Excluded are the Daghur Mongols in Manchuria, most of the Buryats in the Lake Baikal region, and the inhabitants of the Tannu-Urianghai region. On the Tibetan borders I make "transitional" the Bhutanese, Sikkimese, and Nepalese Lamaists, as there are too few studies which would allow one to draw conclusions as to their relationship to Indian institutions in this period.

B. Developmental Period of the Area

In this period of Tibeto-Mongolian history, Lamaist Buddhism began to expand rapidly in Mongolia, with the conversion of Altan Khan of the Mongols. By

1586 the famous monastery Erdeni-dzu was founded near the northern boundary of Outer Mongolia. Establishment of monasteries proceeded through Inner Mongolia to Manchuria, and northward to the Torgut.[3] Many of these monasteries at this time were simply clusters of yurts with connecting passages, and some of them were still moveable. Within a short time, the permanent monasteries began to be built, many in Tibetan architectural style. The rapidity of the expansion of Lamaist beliefs may be seen from the following:

> Lamaism did not stop among the Baraghon Toumen, penetrating without delay to the Chahar and to the Khalkha, separated at this period from the tribes commanded by Altan Khan and Khutukhtai Setsen. Simultaneously with his public adherence to the Yellow sect, Toumen, Khagan of all the Mongols, being converted, promulgated in the general assembly a code of laws inspired by Buddhism and earned in this way the title of Jassaktu Khaghan; the ruler of every "tumen" had the duty of enforcing the application of the new code; for the Ordos, Khutukhtai Setsen was given the office; for the Chahar it was Amutai Kung-taidji, who was sent some years later to Sodnam Gyamtsho with an invitation in the name of the Khaghan. Lingdan Khutukhtu Khan (1604-1634), second successor of Jassaktu, showed no less zeal than his grandfather; he erected a great statue of Buddha, built temples and made a translation of the Kanjur into Mongolian. The Khalkha being connected with the Chahar, their conversion was without doubt contemporaneous; in 1587 or 1588, the deputy of the Chahar encountered a Khalkha Taiji in the service of the Dalai Lama and about 1602 . . . a khutukhtu of high rank took up residence to the north of the desert. Among the Kalmucks the beginning of the 17th century saw the introduction of Lamaism; the Khoshot prince Boibeghous Baatour (ca. 1620) was converted with his people and recognized the Dalai Lama as spiritual leader; his son Ablai caused the construction to the west of the Irtysh, between Tara and Semipalatinsk, of the Buddhist monastery described by Fischer and Pallas under the name of Ablai Khit. Boibeghous Baatour persuaded the other Kalmuck princes; their fervor was so great that Kharakoulla of the Sungars, Dalai Taiji of the Durbet, and Ourluk of the Torgut each sent a son to Tibet to study and become a Lama.[4]

That this was no evanescent connection was to be observed in the following centuries. The struggles of the Manchus, with the aid of many of the Eastern Mongols, against the Western Mongol Galdan, points up the growing reliance of the Mongols politically upon the advice of the Dalai Lama: ". . . they must ask the Dalai Lama's instruction before they dared to obey the Emperor's wishes."[5] And that the Manchu Emperor Kanghsi was not unaware of the Dalai Lama's role is evidenced in the following: "Since Galdan had used religion as his slogan,

3 Georg Huth, *Geschichte des Buddhismus in der Mongolei: Teil II* (Strassburg, 1896), p. 327.

4 M. Courant, *L'Asie Centrale aux XVII et XVIII siecles . . .* (Paris, 1912), p. 16.

5 Tsen Te-mei, *K'ang-Hsi and Galdan* (MA thesis, University of California, Berkeley, 1941), p. 131.

K'ang-hsi informed him in his letter how he himself also respected that religion and had helped it flourish, and how he, in the past, had always consulted the Dalai Lama on every move he took in dealing with Mongol affairs."[6]

The Dalai Lama and the political control which he exercised was established with the aid of the Mongols in the early 1600's. This connection with Tibet, and the process of building and populating monasteries in Mongolia proper involved a great cultural change in the Mongolian world, and the orientation toward Tibet as a cultural center grew with the increasing desire and necessity on the part of the upper ranks of the Lamaist hierarchy to obtain teaching and degrees in Tibet. An extensive hierarchy developed in Mongolia, paralleling that which was being solidified in the civil realm under Manchu control. At least one son, and frequently more, from each family entered the religious ranks. A large proportion of the male population of Mongolia became residents of stable monasteries. At the same time the mapping and stabilization of nomadizing lands was being carried out by the Manchus as Mongolia became pacified. Tibetan scriptures and Tibetan dress were used in the monasteries. With Lamaism came a different calendar of ceremonial observances than obtained in other parts of Asia. Even some of the former shamanist observances, incorporated into Lamaist ritual and given a place in Buddhist theology, were regularized. Tibetan medicine replaced gradually the curings of shamans, although slowly and never entirely. Tibetan astronomy, art, dress, and architecture were gaining currency in Mongolia.

It is evident that the developmental period did not see the emergence full blown of the institutional pattern; the continuing influence of Lamaism combined with the incorporation into the Manchu political sphere was necessary to weld the two regions together.

C. Period of Emergence: 1700-1900 AD

With the Manchu control of China, the second orientation, that toward Peking, set in. "Lamaism . . . found much favour at the court of the Manchu Emperors. Temples were built, texts were printed, great incarnates were recognized and installed; in short, Peking became what to a small extent it remains to this day: a centre of Lamaism."[7]

Chinese trade goods had found their way to Mongolia and Tibet long before the Manchu period began. But under the Manchus, more and more Chinese goods were exported to these areas. Gradually trade relations settled down to the exchange primarily of Mongolian animals and their products for Chinese clothing or materials, grain, sumptuary products, yurt parts (except felt), utensils, saddles,

6 *Idem*, p. 91.

7 Luciano Petech, *China and Tibet in the Early 18th Century* (Leiden, 1950), p. 241.

and most important, brick tea. The Tibetans traded medicine, religious images, musk, jade, furs, etc. for brick tea, silks, clothing materials, rice, sumptuary products and the like from China. Between Tibet and Mongolia a small trade in items for religious use, books, material for the clothing of lamas, objects of art, etc. was carried on. By far the greatest influx of Mongolians into Tibet was either persons coming to study in the monasteries or pilgrims to Lhasa or Tashilhunpo, the seat of the Panchen Lama.

The monastery in this period became the center of urban-like developments. Marts grew up around the monastery, and the temple city became the administrative center in many cases as the nucleus of both ecclesiastic and lay authority. The monastery became the focal point of the economic and political, as well as the religious life of the Mongols. Estimates of the number of males involved in the priesthood varies from one-third to two-thirds of the total population. The depth to which Lamaism was incorporated into the culture of the Mongols may be seen from the following statement by a writer commenting on the 1930's: "as far as the common Mongols are concerned, it seems to be difficult to get rid of Lamaist beliefs. As a matter of fact, one must live together with the nomads in the Mongolian deserts and plains for many years . . . to realize keenly how the life in the Lamaseries in which those fantastic rituals are held, give such great comfort."[8]

Finally, the Tibetans and Mongols were incorporated into the Manchu political sphere. In Tibet the policy varied from one of laissez faire to strict control. In Mongolia the control took the form of intermarriage of Mongol nobles and Imperial princesses, subsidies from the Manchu court to nobles of certain rank, investment of titles and confirmation of inheritance of position, definition of the boundaries of a noble's territory, institution of laws. The old clan system, broken up long before by Jingis Khan into a military formation cutting across clan and tribal lines was further regrouped into sumuns (arrows); sumuns into khoshuns (banners); khoshuns into leagues (Chugulgan, assembly). The territories of the smaller units were strictly demarcated, and alterations were made only by the assemblies with the approval of Peking. Nomadizing was allowed only on the territory of the Banner.

Technologically during this period, the Mongols maintained the traditional form of the yurt, while obtaining almost every structural part by trade. Native crafts deteriorated, although in the monasteries craftsmanship was still encouraged. Chinese and, for a time, Russian trade goods became more and more necessities, finding their way into the furnishings of the yurt, and involving the Mongols

8 Ryozo Miyagi, *Mouvement national du peuple mongol et les lamas* (Mōko-gaku, vol. 3, pp. 125-138, 1938 [in Japanese]).

in never-ending debt, which fixed them more securely in the large trade-political complex. Chinese clothing, and among the nobility, Chinese food, became more prominent.

Among the Buryat Mongols, who were less influenced by Lamaism, the old clan structure was maintained for a longer period. Shamanism prevailed throughout most of their area. But during this time, Russian influence grew stronger, forcing some of the Buryats to adopt agriculture, the Russian style house, and eventually Russian dress. I am including only the Lamaist Buryats in the Tibeto-Mongolian Institutional Area, as they participated somewhat more closely than the rest in the cultural pattern which developed. If a finer division of the area were attempted, I would of necessity group even this portion of the Lamaist Buryats as a "transitional" group.

D. Period of Regroupment: 1900 to Present

Almost coincident with the Chinese Revolution, the Living Buddha of Urga took over for a brief period the temporal reins in Outer Mongolia. This marked the beginning of the decline of the Tibeto-Mongolian Area as a unit. Russian influence, which in the area as a whole had been minor, began to increase rapidly, drawing Outer Mongolia, Khalkha, away from the Tibeto-Mongolian sphere. With the Soviet revolution and Soviet penetration, new economic forms and a new script for the written language—used in school and secularly taught—new dress and new styles of construction began to supplant the older forms. Lamaist influence was ruthlessly rooted out, and while not destroyed, the religious system lost its economic, political, educational, and literary aspects.

With the overthrow of the Living Buddha in 1921-24, the ties between Tibet and Mongolia continued to disintegrate. Outer Mongolia was drawn more and more into a Soviet "cultural sphere," if such there be, and Mongolian nomadism was placed in much the same economic category as the specialized cotton-growing region of Russian Turkestan. Industry was promoted, as well as some agricultural activity. Fodder stations were set up to counteract the terrors of winter for the herds. Veterinary centers were scattered throughout Outer Mongolia, and an attempt was made to educate a large part of the herding population in modern methods of stock raising. New political forms were introduced, and new laws written.

Inner Mongolia was subjected to more and more Chinese colonization,[9] and some groups of the Mongols in this area turned to farming, though retaining many of their old religious beliefs and manners of dress, food, etc.

9 Compare P. E. Skatchkov, *Unutrennyaya Mongoliya*, ch. 2, pp. 14 ff.

To sum up this last period, I may say that the Tibeto-Mongolian Institutional Area which had become a reality through the influence of the "religious-political-lettered culture" shared by Tibetans and Mongols, broke apart under the impact of other institutional systems, and began to regroup itself into new cultural formations. Perhaps Tibet remained the most stable, continuing to play more or less the same role it had under the Manchus: a territory with a unique political-economic-religious system, under the control of a foreign power, but with its autonomy virtually intact.

SUMMARY

While a detailed analysis has not been made, it is felt that the influences of the institution of Lamaism, Manchu political control, and incorporation into the Chinese economic sphere have been shown to be of sufficient strength over a definite period of time to set up effective barriers to the grouping of the Mongols with other Central Asiatic nomads. The effects of these forces have been such as to place the Tibetans and Mongols culturally together during this time. Despite the tremendous influence of Lamaism and the impact of Chinese culture upon the Mongols—two factors upon which most authorities agree—there is still a tendency to think in terms of the Mongols of Jingis Khan's era, and to forget the culturally enveloping tendency of the universal religion emerging from Tibet in the 16th century. The actual process may have begun much earlier, with the inclusion of the Red Cap Lamaists in the court of Kublai Khan. But the effective influence, developed during the period defined here, was strong enough to necessitate our removing the nomadic Mongols from the Central Asian Pastoral Nomadic Culture Area (Patai) or Steppe Area (Naroll), and placing them into a new areal grouping, the Tibeto-Mongolian Institutional Area, limited in space, in time, and in cultural content.

UNIVERSITY OF WASHINGTON
SEATTLE, WASHINGTON

A REAPPRAISAL OF EVIDENCE OF PLAINS INFLUENCES AMONG THE RIO GRANDE PUEBLOS[1]

CHARLES H. LANGE

THE PUBLISHED MATERIAL relating to the Indian tribes of the central and southern plains and the Rio Grande pueblos is extensive. Even after discarding material not essential to this particular topic, an imposing body of data remains. For convenience, the following sub-topics have been selected: physical anthropology, linguistics, archaeology, and ethnology.

PHYSICAL ANTHROPOLOGY

Literature providing descriptive or comparative data for the two sub-areas is not as extensive as one might expect. One important study was Hooton's analysis of 1254 skeletons obtained from the excavation of the ruins of Pecos Pueblo.[2] In view of the peripheral location of this pueblo, considerable evidence might well be anticipated in relation to the southern and central Plains Indians. Hooton fostered such an expectancy by designating one of his eight physical types as "The Plains" which he described as a mesocephalic, transitional type. However, Hooton quickly added that there were no similarities between this type and any skeletal material of which he was then aware from the southern and central plains. The closest affiliation he found was with a miscellaneous Algonkin series from Illinois. He noted that his eight types occurred throughout the series of cultural levels at Pecos and concluded that "No 'New Race' appeared during the history of Pecos." Also, Hooton was unable to detect any high degree of homogeneity in the skeletal remains from any Pecos level.[3] Hrdlička's studies of skeletal remains from the two sub-areas failed to show any appreciable similarities.[4]

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1 This material, in modified form, was presented at the meetings of the American Association for the Advancement of Science in St Louis in December, 1952, as a part of a symposium on "The Rio Grande Pueblos and the Plains." The writer wishes to express his appreciation to Dr J. G. McAllister for his reading of the manuscript and his suggestions regarding it.

2 Earnest A. Hooton, *The Indians of Pecos Pueblo* (New Haven, 1930).

3 *Idem*, p. 185.

4 Aleš Hrdlička, *Physiological and Medical Observations among the Indians of Southwestern United States and Northern Mexico* (Bulletin, Bureau of American Ethnology, no. 34, Washington, 1908); "The Stature of the Indians of the Southwest and Northern Mexico" (in *Putnam Anniversary Volume*, pp. 405-426, New York, 1909); *Catalogue of Human Crania in the United States National Museum Collections: Algonkin and Related Iroquois, Siouan, Caddoan, Salish and Sahaptian, Shoshonean, and Californian Indians* (Proceedings,

In von Eickstedt's classification, there was insufficient detail presented to provide satisfactory comparative data. Both the dolichocephalic Sylvids and the brachycephalic Centralids were indicated in the upper Rio Grande and in the adjacent plains. Also in the Southwest were the dolichocephalic Margids.[5]

Seltzer provided greater detail in a more recent study of Southwestern racial prehistory.

> A study of the time relationships of the units forming the "Southwest Plateau" stock strongly suggested the existence of a continuity of "Southwest Plateau" stock from the Basket Maker period clear up to recent times. There was no evidence to show, from any data available at the present, that there was any other physical stock of the same level of importance as the "Southwest Plateau" Indians in the make-up of the Basket Maker-Pueblo peoples. The presence of other physical types and deviations from the typical "Southwest Plateau" pattern among the Pueblos and especially the later Pueblos could be attributed for the most part to modifications of the original strain due to the absorption of new blood through intermittent small contacts, intermarriage, selective genetic factors, or to the result of stimuli persistently present in the environment. There is no suggestion of any sweeping change in physical type or of any enormous influx of new blood into the Basket Maker-Pueblo peoples until perhaps in the latter part of the Pueblo IV period, except in the Rio Grande region. In this latter area, the new elements arrived earlier and in greater strength than in the western part of the upland plateau region and served to obliterate the original "Southwest Plateau" type.[6]

Regarding the Rio Grande Pueblos, Seltzer commented that while the earlier Pecos types were closer to his "Southwest Plateau" form, the later types were more divergent. While Hooton explained the later Pecos types by "the continuous process of amalgamation through inbreeding of the somewhat heterogeneous types of the earliest population," Seltzer preferred that the explanation be held open pending additional evidence. He noted that the distinguishing features which set aside the later Pecos types were present "in most of the groups originating immediately north and northeast of the Rio Grande area."

> . . . The physical characteristics of such groups as the Apache, Navaho, and Comanche are not incompatible with any supposition that they might have been responsible through admixture for modifications in the physical composition of the early Rio Grande Pueblos. From the historical point of view, the probability of the presence

United States National Museum, vol. 49, art. 5, Washington, 1927); *The Pueblos, with Comparative Data on the Bulk of the Tribes of the Southwest and Northern Mexico* (American Journal of Physical Anthropology, vol. 20, pp. 235-460, 1935).

5 Egon Freiherr von Eickstedt, *Rassenkunde und Rassengeschichte der Menschheit* (Stuttgart, 1934), pp. 696-720.

6 Carl C. Seltzer, *Racial Prehistory in the Southwest and the Hawikuh Zunis* (Papers, Peabody Museum, Harvard University, vol. 23, no. 1, Cambridge, 1944), pp. 32-33.

of Navaho, Apache, and Plains elements in the Rio Grande area during the Pueblo IV period is now generally accepted by students of Southwestern prehistory. Furthermore, cultural references to the probability that these elements existed in the Rio Grande area at an even earlier period than Pueblo IV are being actively investigated by a number of students. It should be clearly understood, however, that there is no somatological evidence at the moment that these groups were actually responsible for the physical changes in the Rio Grande population from their earlier composition. All that is meant to be implied is that they should not be dismissed as potential sources from both the historical and anthropometric aspects.[7]

What is needed to solve such problems as posed here are studies paralleling von Eickstedt's scope and Hooton's and Seltzer's intensity. While no such mass of data has yet been published, the reworking and elaboration of von Eickstedt's material by Neumann would seem to hold the brightest prospects. Most heartening to other anthropological specialists are Neumann's continued attempts to correlate his physical data with cultural data.[8] However, as of the moment, there appears to be no conclusive evidence in the published literature, for either the prehistoric or historic periods, which demonstrates genetic influence of Plains tribes among the Rio Grande Pueblos.

However, there are numerous ethnological indications that such genetic influences have occurred and, in fact, are occurring at present. For example, at Cochiti Pueblo there is a group of siblings who have been important in the tribal life for many years: their mother was a captive Comanche. She was raised by a Spanish family and eventually married a Cochiti, in the process of which she was adopted into the tribe. Even a casual visit to such eastern pueblos as Taos reveals many individuals whose physical features strongly suggest Plains ancestry. Long-standing trade relations, intermittent warfare with associated slave traffic, and similar activities undoubtedly led to innumerable genetic mixtures during past centuries. Today, increasing numbers of marriages occur between young people of the eastern Pueblo tribes and the Plains tribes who meet at government schools

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7 *Idem*, pp. 30-31. L. C. Wyman and W. C. Boyd have reached conclusions from blood group studies which support the explanation that new population elements with a higher ratio of A mixed in later pueblo times with the dominantly O Pueblo people. Earlier than the Pueblos, the Basket Makers showed some incidence of A but seemingly not enough to account for the later incidence (*Blood Group Determinations of Prehistoric American Indians*, American Anthropologist, vol. 39, pp. 583-592, 1937).

8 For example, see Georg Neumann, *On the Physical Types of the Shoshonean-Speaking Tribes* (Proceedings, Indiana Academy of Science, vol. 55, pp. 26-28, 1946); *American Indian Crania with Low Vaults* (Human Biology, vol. 14, pp. 178-191, 1942); *The Origin of the Prairid Physical Type of American Indian* (Papers, Michigan Academy of Science, Arts, and Letters, vol. 27, pp. 539-542, 1942); *Migrations and the Origin of the Woodland Culture* (Proceedings, Indiana Academy of Science, vol. 54, pp. 41-43, 1945).

and elsewhere. The task at present seems not so much to question the existence of such contacts and admixtures but rather to devise the techniques and skills with which to identify conclusively the products of such physical intermixtures.

LINGUISTICS

A comprehensive survey and evaluation of classifications of the Indian languages of America was published by Hoijer in 1946. In his preliminary remarks to the North American data, he commented:

> The first comprehensive classification of the languages north of Mexico was made by J. W. Powell and his associates, A. S. Gatschet and J. Owen Dorsey, in 1891. Though a number of far-reaching modifications of this classification have been suggested since, the groups set up by Powell still retain their validity. In no case has a stock established by Powell been discredited by later work; the modifications that have been suggested are all concerned with the establishment of larger stocks to include two or more of the Powell groupings. . . .[9]

Summarizing the work of Powell,[10] the languages of the Rio Grande Pueblos came under the headings of Keresan (the eastern group) and Tanoan. The latter was further divided into Tewa, Tiwa, and Towa. To the northeast, east, and southeast of these stocks a buffer strip was formed by the various Athapaskan-speaking Apache groups, traditionally considered as Southwesterners rather than Plains. Beyond the Apaches were the tribes of the central and southern plains whose languages were classified as follows by Powell. There were the Shoshonean-speaking Comanche, the Caddoan-speaking Pawnee and Wichita, the Algonkian-speaking Southern Arapaho and Cheyenne, the Athapaskan-speaking Kiowa-Apache, and the Kiowa-speaking Kiowa. Thus, as originally described by Powell, the linguistic stocks of the Rio Grande Pueblos and their nearest neighbors among the Plains tribes were quite distinct.

However, as noted by Hoijer, various attempts have been made to merge certain of these languages. Sapir, in 1929, included Keresan as a component of Coahuiltecan within the more inclusive Hokan-Siouan stock.[11] As early as 1910, Harrington published on resemblances between Kiowan and Tanoan.[12] Sapir, in

9 Harry Hoijer, "Introduction" (in Harry Hoijer and others, *Linguistic Structures of Native America*, Viking Fund Publications in Anthropology, no. 6, New York, 1946), p. 10.

10 J. W. Powell, *Indian Linguistic Families of America North of Mexico* (7th Annual Report, Bureau of American Ethnology, pp. 7-142, Washington, 1891).

11 Edward Sapir, "Central and North American Indian Languages" (*Encyclopedia Britannica*, 14th edition, vol. 5, pp. 138-141, 1929; reprinted in David G. Mandelbaum, *Selected Writings of Edward Sapir*, pp. 169-178, Berkeley, 1949).

12 John P. Harrington, *On Phonetic and Lexical Resemblances between Kiowan and Tanoan* (Papers, School of American Archaeology, Archaeological Institute of America, no. 12, Washington, 1910).

his 1929 classification, named his sixth stock "Aztec-Tanoan;" under this heading he listed Uto-Aztecan, Tanoan-Kiowa, and Zuñi (?).[13]

Sapir's own comment, introducing this classification, stated, "A more far-reaching scheme than Powell's, suggestive but far from demonstrable in all its features at the present time, is Sapir's."[14] Subsequently, Whorf and Trager published upon "The Relationship of Uto-Aztecan and Tanoan,"[15] and the Voegelins expressed concurrence with both the Hokan-Siouan affiliation of Keresan and the Aztec-Tanoan inclusion of Uto-Aztecan, Tanoan-Kiowa, and Zuñi.[16] Newman and Spencer are of the opinion that the affiliation of Keresan with Hokan is, for the present, completely hypothetical and should await additional descriptive data before any taxonomic affinities can be stated reliably.[17]

Marriott has noted that "some Kiowas recognize a resemblance between their language and that of Taos."[18] Additional data have been presented by Harrington and others which appeared to establish this relationship even more firmly.[19]

In summary, Hoijer's conservative evaluation of Powell's linguistic classification remains widely accepted. At present, the affiliation of Keresan with Hokan-Siouan appears no more than tenuous. The merger of Kiowan and Tanoan seems much stronger, with considerable feeling that these languages, in turn, belong with Uto-Aztecan. The least likely component is Zuñi, which is not of direct concern here.

Assuming that eventually these relationships become generally accepted, there is little chance of demonstrating that they approached even a low degree of mutual intelligibility for any known time in the past. How long ago such a relationship did exist is the type of question that students of American Indian culture history would like answered.

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13 Sapir, *Central and North American Indian Languages*.

14 *Ibid*.

15 B. F. Whorf and George L. Trager, *The Relationship of Uto-Aztecan and Tanoan* (American Anthropologist, vol. 39, pp. 609-624, 1937); see also George L. Trager, "An Outline of Taos Grammar" (in Hoijer and others, *Linguistic Structures of Native America*, pp. 184-221).

16 C. F. Voegelin and E. W. Voegelin, *Map of North American Indian Languages* (Publication, American Ethnological Society, no. 20, no date [post-1941]).

17 Stanley S. Newman, personal Correspondence, December 5, 1952, and Robert F. Spencer, personal Correspondence, December 5, 1952.

18 Alice Marriott, *The Ten Grandmothers* (Norman, Oklahoma, 1945), p. viii.

19 John P. Harrington, "The Sounds and Structure of the Aztecan Languages" (Appendix II in Edgar L. Hewett and Bertha P. Dutton, *The Pueblo Indian World*, pp. 157-162, University of New Mexico Press, 1945); Parker McKenzie and John P. Harrington, *Popular Account of the Kiowa Indian Language* (Monographs, School of American Research, no. 12, Albuquerque, 1948). (In a review of this second paper, A. M. Momaday, a Kiowa, accepted the general tenets of McKenzie and Harrington [El Palacio, vol. 55, pp. 85-86, 1948].)

ARCHAEOLOGY

Numerous remains of prehistoric Pueblo pottery, dwellings, and other items have been found well east of the present limits of Pueblo Indian culture.[20] Evidence of the reverse movement, however, i.e., from the plains into the eastern pueblo country, is less apparent in the literature. Due to the nomadic nature of Plains life and the warlike character of these tribes' westward ventures, few archaeological remains can be attributed to them. Innumerable pueblos have revealed evidence of destruction or at least damage at the hands of raiders. However, archaeologists as yet have devised no conclusive means of demonstrating the true identity of these invaders. Normally, credit for these forays has been given various Apaches and the related Navaho.[21]

Projecting certain conclusions from the time of historical ethnology back into archaeological horizons, the Plains tribes may have been involved indirectly, at least, as they exerted pressure upon the Athapaskans who, in turn, did the actual pillaging of these towns. Positive identification of specific Plains tribes and their roles during prehistoric times among the Rio Grande Pueblos awaits the assignment of certain distinctive artifacts, or specific forms of these artifacts, to particular tribes.

Also to be considered within the immediate confines of archaeology are the problems of migrations and interrelationships of the Pueblo tribes, themselves. Until Pueblo culture history can be reconstructed at least in broad outlines, it is difficult, if not impossible, to accomplish much in the way of correlating these groups with non-Pueblo cultures and peoples. Recent years have seen several attempts at such broad reconstructions; whether any of these is essentially correct in all details is relatively unimportant for the present.[22] What is important

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20 See the bibliographies contained in J. Charles Kelley, *Factors Involved in the Abandonment of Certain Peripheral Southwestern Settlements* (American Anthropologist, vol. 54, pp. 356-387, 1952); and Alex D. Krieger, *Culture Complexes and Chronology in Northern Texas, with Extension of Puebloan Datings to the Mississippi Valley* (University of Texas Publication, no. 4640, 1946).

21 J. H. Toulouse, Jr, *The Mission of San Gregorio de Abo: a Report on the Excavation and Repair of a Seventeenth-Century New Mexico Mission* (Monographs, School of American Research, no. 13, Santa Fe, 1949). Toulouse attributed the raids on Abo and other Salinas Pueblos, which were abandoned between 1672 and 1675, to the attacks of the Apache and Comanche. In reviewing this monograph, J. O. Brew and R. G. Montgomery commented as follows: "The depredations of the Apaches among the Saline Pueblos is part of the history of the Southwest. On the other hand, the evidence of historical record indicates that the Comanche did not harass any of the New Mexico missions until after the opening of the Eighteenth Century; so they cannot be made to share the blame with the Apaches for the destruction and abandonment of the Saline towns" (El Palacio, vol. 58, p. 328, 1951).

22 Fred Eggan, *Social Organization of the Western Pueblos* (Chicago, 1950), pp. 291-324; Florence Hawley Ellis, *Pueblo Social Organization and Southwestern Archaeology* (American

is that more individuals are becoming aware of the advantages, and the necessity, of thinking in terms of culture history which embraces data from physical anthropology, linguistics, archaeology, and ethnology. While progress will undoubtedly be slow under such broad perspectives, its future appears more certain. A few examples of correlating the living, or at least historic, pueblos with those of the past are well known.[23] More work is needed of the type currently being conducted in and around Acoma Pueblo.[24]

ETHNOLOGY

Utilizing the sources of both history and ethnology, an appreciably wider range and quantity of evidence bearing upon Plains influences on the Rio Grande Pueblos appears.

Thomas has summarized early historical Plains influences in noting the unceasing raids upon the Pueblo tribes. At least one motive was the capture of prisoners, or slaves. Elsewhere, after mentioning that Coronado found the Plains tribes friendly, Thomas continued:

> . . . With the occupation of New Mexico, however, the protection of the Pueblos enmeshed the Spaniards in the ancient antagonism between their charges and the Plains Indians. The latter attacked the Pueblos primarily for food; the Spaniards now brought grains hitherto unknown, cattle, sheep, pigs, fowls, and other domestic animals, especially the horse. . . .
>
> Trade encouraged by the governors and encomenderos brought the Plains Indians to the fairs, especially at Taos, out of which came occasions for attack. The Indians brought in buffalo hides, meat, salt, suet, tallow, deer and antelope skins, and prisoners, both Indians and Spaniards, for ransoming. In return they sought cotton blankets, pottery, maize, stones, probably turquoise for personal adornment, and the ransom of their kinsmen. . . .[25]

Antiquity, vol. 17, pp. 148-151, 1951); Florence M. Hawley, *Pueblo Social Organization as a Lead to Pueblo History* (American Anthropologist, vol. 39, pp. 504-522, 1937); Paul S. Martin and John B. Rinaldo, *The Southwestern Co-Tradition* (Southwestern Journal of Anthropology, vol. 7, pp. 215-229, 1951); Erik K. Reed, *Sources of Upper Rio Grande Culture and Population* (El Palacio, vol. 56, pp. 163-184, 1949).

23 Among the better known reports of this type are those of Montgomery, Smith, and Brew at Awatobi; Hodge, Roberts, and Spier at Zuñi, Reiter at Jémez; Nelson in the Galisteo; and Kidder at Pecos. See also Carroll L. Riley, *Early Spanish Reports of the Galisteo Basin* (El Palacio, vol. 58, pp. 237-243, 1951); Carroll L. Riley, *San Juan Anasazi and the Galisteo Basin* (El Palacio, vol. 59, pp. 77-82, 1952). This list does not pretend to be exhaustive but merely suggestive of the type of field work and historical correlative research needed.

24 R. J. Ruppé and A. E. Dittert, *The Archaeology of Cebolleta Mesa and Acoma Pueblo: a Preliminary Report Based on Further Investigation* (El Palacio, vol. 59, pp. 191-217, 1952).

25 A. B. Thomas, *The Plains Indians and New Mexico, 1751-1778* (Albuquerque, 1940), pp. 1-3.

Repeated references in the early accounts suggest an influence of the Plains tribes upon the eastern Pueblos which has been overlooked because of its indirect nature. To meet the threat of raids from the Plains tribes, the Spaniards stationed garrisons in these villages. The willingness with which the Pueblo tribes accepted the alien Spanish troops must have facilitated a wide range of acculturative contacts resulting from such close associations.[26]

Early historical accounts provide very little in the way of precisely detailed descriptions of Plains elements among the Pueblos. Roughly a century after the period described by Thomas, there was an account by Lt Col Emory which told of a meeting between the Kearney expedition and the Indians of Santo Domingo Pueblo.

> September 3.—This has been a great day. An invitation was received, some days since, from the Pueblo Indians to visit their town of Santo Domingo. From height to height, as we advanced, we saw horsemen disappearing at full speed. As we arrived abreast of the town we were shown by a guide, posted there for the purpose, the road to Santo Domingo. . . . We had not proceeded far, before we met ten or fifteen sachemic looking old Indians, well mounted, and two of them carrying gold-headed canes with tassels, the emblems of office in New Mexico.
>
> Salutations over, we jogged along, and, in the course of conversation, the alcalde, a grave and majestic old Indian, said, as if casually, "We shall meet some Indians presently, mounted and dressed for war, but they are the young men of my town, friends come to receive you, and I wish you to caution your men not to fire upon them when they ride towards them."
>
> When within a few miles of the town, we saw a cloud of dust rapidly advancing, and soon the air was rent with a terrible yell, resembling the Florida war-whoop. The first object that caught my eye through the column of dust, was a fierce pair of buffalo horns, overlapped with long shaggy hair. As they approached, the sturdy form of a naked Indian revealed itself beneath the horns, with shield and lance, dashing at full speed, on a white horse, which like his own body, was painted all the colors of the rainbow; and then, one by one, his followers came on, painted to the eyes, their own heads and their horses covered with all the strange equipments that the brute creation could afford in the way of horns, skulls, tails, feathers, and claws.
>
> As they passed us, one rank on each side, they fired a volley under our horses' bellies from the right and from the left. Our well-trained dragoons sat motionless on their horses, which went along without pricking an ear or showing any sign of excitement.
>
> Arrived in the rear the Indians circled round, dropped into a walk on our flanks until their horses recovered breath, when off they went at full speed, passing to our front, and when there, the opposite files met, and each man selected his adversary

26 *Ibid.*; see also A. B. Thomas, *After Coronado* (Norman, Oklahoma, 1935); *Forgotten Frontiers* (Norman, Oklahoma, 1932); and *Teodoro de Croix and the Northern Frontier of New Spain, 1776-1780* (Norman, Oklahoma, 1940).

and kept up a running fight, with muskets, lances, and bows and arrows. Sometimes a fellow would stoop almost to the earth to shoot under his horse's belly, at full speed, or to shield himself from an impending blow. So they continued to pass and repass us all the way to the steep cliff which overhangs the town. There they filed on each side of the road, which descends through a deep cañon, and halted on the peaks of the cliffs. Their motionless forms projected against the clear blue sky above formed studies for an artist. . . .[27]

In more recent times, these same costumes and paraphernalia so closely associated with the Plains tribes can be seen in virtually any Rio Grande Pueblo whenever a hunting or war dance is held. Many of the Pueblos refer to the war dance as a Comanche Dance.[28] Plains-like items include eagle war bonnets often with trailing wings, fringed buckskin shirts and leggings, full beaded moccasins, an occasional buffalo cap with horns, and the hair arranged in two wrapped braids. A generation or more ago, the Cochiti "Comanche Dance" was accompanied by the Plains single-headed, flat, or tamburine, drum beaten with a hoop stick. Today, the typical double-headed drum prevails. Explanation of this diffusion often mentions such commercial enterprises as the First Americans Exposition in Albuquerque a quarter of a century ago or the Gallup Intertribal Ceremonials which have continued into present times. However, as Emory's account of over a century ago indicated, the diffusion of such elements into the Pueblo area had begun much earlier than this relatively modern period.

In 1880, Bandelier was told at Santo Domingo of trading expeditions from that Pueblo into the Plains. The trip to Comanche country took a month each way, and the actual trading involved two days. On these occasions, Plains sign language symbols were used. The Comanche "fix a certain day and place, at which the Pueblos appear, and the trading is preceded by a council and presents. The rules of trading are fixed then." From Bandelier's description, it would appear that there was considerable competition among the Comanche, Kiowa, and other Plains tribes to get first chance at such trading opportunities.[29] A

27 W. H. Emory, *Notes of a Military Reconnoissance from Fort Leavenworth, in Missouri, to San Diego, in California, including part of the Arkansas, Del Norte, and Gila Rivers* (Thirtieth Congress, 1st Session, Ex. Doc. No. 41, Washington, 1848), pp. 37-38. This event was quoted in Leslie A. White, *The Pueblo of Santo Domingo, New Mexico* (Memoirs, American Anthropological Association, no. 43, 1935), pp. 18-19.

28 For details of these ceremonies see Esther S. Goldfrank, *The Social and Ceremonial Organization of Cochiti* (Memoirs, American Anthropological Association, no. 33, 1927), p. 107; Charles H. Lange, *Kings' Day Ceremonies at a Rio Grande Pueblo, January 6, 1940* (El Palacio, vol. 58, 1951), pp. 402-404; Elsie C. Parsons, *The Social Organization of the Tewa of New Mexico* (Memoirs, American Anthropological Association, no. 36, 1929), pp. 208-216, pl. 31-34.

29 Adolph F. Bandelier, *Journal of 1880* (Unpublished manuscript, Archives, Museum of New Mexico, Santa Fe), September 26, October 21.

Cochiti informant stated that in 1952 there were still Cochiti and other Pueblo Indians who could use these "signs."

In his discussion of native Southwestern culture, Kroeber made the following comments pertinent to the present discussion.

> . . . The Southwestern culture has been non-expansive; its Pueblo form conspicuously so. . . . In the Plains there are some traits that can presumably be led back to a Southwestern origin: earth altars, for instance, dice-scoring on a circuit, perhaps the fetish bundle and shields. In the main, however, it is remarkable how little the Plains seem to have taken over from the Southwest. The reciprocal influence seems at least equal; since the introduction of the horse, probably more powerful. Taos, the frontier settlement, is counted Pueblo and essentially is such; but in material culture and dress it is half Plains. Taos has evidently absorbed Plains culture to much the degree that Acoma and Zuñi have absorbed Spanish Mexican culture. As normally it is the more advanced culture that affects the other most, Southwestern impulses are indicated as unusually self-contained, centripetal, perhaps weak in all respects except tenacity.[30]

Undoubtedly, the self-contained and tenacious nature of Pueblo culture has served to minimize the diffusion of Plains culture, aside from certain selected items, despite the geographic possibility of this. Soon after Kroeber's article appeared, Parsons published a discussion of "Ritual Parallels in Pueblo and Plains Cultures, with a Special Reference to the Pawnee."[31] Her opening statements were as follows.

> Now and again the Pueblo student may have asked himself whether certain Pueblo traits do not carry a suggestion of Plains culture. The fetich bundles of the western pueblos, the behavior of the Clown societies, the tribal societies of the Hopi, the chiefly police system of the Tanoans, the directional corn-named groups of Isleta, the scalp dance of Zuñi, the summer camp of Taos, herein are to be found various aspects of Plains life. Yet the ritual emphasis, the ceremonial complexes, the social values at large, of the Pueblos vary so much from those of the Plains tribes that suggestions of parallelism must have been lightly dismissed, at least so I presume, as they have rarely found a way into print. . . .[32]

Proceeding into a detailed analysis of various traits, Parsons considered specific overt parallels as well as the covert motivations underlying these acts and material items. A roster of such parallels, limited to the eastern Pueblos for the purpose of this discussion, included the following: under the heading

30 Alfred L. Kroeber, *Native Culture of the Southwest* (University of California Publications in American Archaeology and Ethnology, vol. 23, no. 9, 1928), p. 393.

31 Elsie C. Parsons, *Ritual Parallels in Pueblo and Plains Cultures, with a Special Reference to the Pawnee* (American Anthropologist, vol. 31, pp. 642-654, 1929).

32 *Idem*, p. 642.

of *ritual objects* were fetish-bundles of the Plains and *iariko* of the Keres, the highly important and potent Corn Mothers, and other sacrosanct objects associated with altars, and various forms of prayer-sticks; under *headdress, mask, and sacred paint,* Parsons mentioned the well-known Buffalo headdress and other antlered headdresses, certain Clown masks (for which Parsons raised the possibilities of European origins), and the sacrosanct nature of body and face paint in both areas involving certain restrictions in behavior; under *ritual,* ceremonial bathing and the use of sage, cedar, and tobacco, offerings and fasting, folklore references to long-range travel by flying or other means, and the Plains *iruska* complex (enduring boiling water, fire-handling, stick-swallowing, jugglery) with the Pueblo parallels were described. Parsons noted the statement that individual supernatural experience was not sought by the Pueblos as among the Plains, but then cited certain examples from the western Pueblos where such experiences were sought but for the good of the group and not for the seeker as such. Parallels for this can be found at Cochiti and other eastern Pueblos.

Parsons then considered parallels within the organization for war, noting that the Pueblo side of the problem was the more difficult to analyze due to Spanish influences in governmental structures and generally fewer data. Certain policing groups, warrior societies, and paraphernalia were cited here. She continued,

> The Spirits, the behavior of ceremonial groups, rites and ritual objects—in these particulars we have been finding our parallels, without note of the ceremonial organization at large or the ceremonial calendar. Along these lines there is little to compare, in the first case because ceremonial organization as a whole is naturally closely bound up with the general social organization which between Pueblo and Plains tribes differs considerably,—maternal clan, paternal moiety, and town chieftaincies giving a character to the Pueblos which is generally lacking in the Plains,—in the second case because the calendar of an agricultural people concerned primarily with season, weather, and crops naturally varies from calendars determined by hunters and warriors.[33]

In concluding, Parsons reviewed the parallels in calendar and organization which appeared "so strikingly" between Pueblo and Pawnee ceremonialism. She noted medicine or curing societies and societies possessing a rain bundle including perfect corn ears, a hierarchic council composed of chiefs of the bundles with a rotating alternation of the office of supreme chief, the association of medicine men with living creatures and appropriate costuming, a seasonal

33 Parsons, *Ritual Parallels,* pp. 652-653.

ceremonial division with associated moiety groups, fertility practices, offerings, ritual stunts and tricks, and others. Parsons' final evaluation was as follows.

> In the Pawnee origin myth it is notable that the rain bundles, which quite in the Pueblo vernacular are said to be "handed down," have been carried from the Southwest from whence the people came, *i.e.*, the origin myth is a migration myth, again a Pueblo feature.
>
> In the seventeenth century the Pawnee raided for horses in the Pueblo area, but long before that, prior to their northeasterly migrations, may they not have been in closer and more pacific contact with the Pueblos? At any rate when the cultivation of maize was acquired by the Pawnee it carried ideology and ritualism similar to the Pueblo. Here, possibly, in a maize complex of ritual together with technique, the Southwest imparted its culture on a more notable scale than Kroeber has allowed for in his last masterly contribution to the discussion of the distribution of culture traits in North America.[34]

In another comparative paper, Ray discussed the ceremonial pattern of contrary behavior among certain American Indian tribes. A few pertinent excerpts from his discussion follow.

> Distorted or unnatural behavior is extensively exploited as a ritual device by Indians of North America. Available information points to the Southwest and the Plains as the two areas of richest development. In the former area the behavior distortion is epitomized in the ceremonial clown. In the Plains the emphasis is quite different. Anti-natural behavior is the point of focus as contrasted to the merely unnatural. The exact opposite of normal human behavior is the ideal sought. The ideal is reached in speech inversion but a compromise is necessary in behavior categories where true inversion is impossible. Humorous performances sometimes result; one trend led to the development of a near-typical clown. But clowning is not the objective; indeed, hardly more than incidental. In many instances the activities are profoundly serious. The terms of designation indicate the character of the cults; "contrary" or "crazy" are the most common descriptive terms. . . .[35]

As Ray indicated, this pattern had widespread incidence in North America and received modified phrasings in various areas. Hence, its significance here as a Plains pattern moving into the Pueblo cultures cannot be substantiated in any way.

Another topical paper involving tribes of each of the sub-areas concerned

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34 Parsons, *Ritual Parallels*, p. 654. Parsons had reference here to Kroeber's *Native Culture of the Southwest*, cited above.

35 Verne F. Ray, *The Contrary Behavior Pattern in American Indian Ceremonialism* (Southwestern Journal of Anthropology, vol. 1, pp. 75-113, 1945), p. 75; see also Julian H. Steward, *The Ceremonial Buffoon of the American Indian* (Papers, Michigan Academy of Science, Arts, and Letters, vol. 14, pp. 187-207, 1930).

here was Benedict's study of the guardian spirit in North America. She noted the presence of guardian spirit concepts in both Plains and Pueblos. Her observations agreed with those of Parsons. She carefully pointed out that "The Southwest is the one great area of North America where guardian spirits have no dominant role in ceremonial or individual life." Whereas the ceremonialism in the Southwestern pueblos was more elaborate and tribally important than in any other North American area, she noted, "it is dominated by the necessity of group-ceremonial approach to the gods, not of that of individual experience."[36]

Continuing with similar contrasts, which she expanded in her "Patterns of Culture" (cited elsewhere in this paper), Benedict noted other basic contrasts in Plains-Pueblo behavior. In her paper, "Configurations of Culture in North America," Benedict pointed out the presence in both areas of scalping. She then proceeded to note that while the Pueblos cleaned their scalp trophies with characteristic initiatory shampoos, the Plains cleaned their trophies with their tongues.[37]

In a somewhat different vein, at present day Cochiti Pueblo ceremonial use of tobacco still exists. In addition to their domesticated and cultivated tobacco (*N. attenuata*), the Cochiti also use three wild plants which they group under the Spanish term *punche*. These are designated as "Rat *punche*," "Jemez *punche*," and "Comanche *punche*." The "Comanche *punche*" is sumac (*Rhus cismontana*) which is gathered in the Jemez Mountains northwest of the pueblo. Sumac has a much wider distribution: among other places, it is found far to the east within the confines of former Comanche territory. While no explanation of origin is apparently known to present-day Cochiti, the name is at least suggestive.

Turning to economic considerations, maize has long been recognized as the foundation of Pueblo agriculture. Traditionally, this has been derived from southern sources. However, Carter's study of Southwestern plant geography and culture history stated that the northern flint corn of the Pueblos came from the east.[38] While this particular paper by Carter has received rather stiff

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36 Ruth F. Benedict, *The Concept of the Guardian Spirit in North America* (Memoirs, American Anthropological Association, no. 29, 1923), pp. 35-36.

37 Ruth F. Benedict, *Configurations of Culture in North America* (American Anthropologist, vol. 34, pp. 1-27, 1932), pp. 15-17.

38 George F. Carter, *Plant Geography and Culture History in the American Southwest* (Viking Fund Publications in Anthropology, no. 5, New York, 1945): the discussion of maize, pp. 39-55. See also a later paper by Carter, *Historic Implications of Chromosome Distributions of North American Indian Maize* (Southwestern Journal of Anthropology, vol. 5, pp. 199-207, 1949).

criticism both botanically and culturally,[39] he was supported in this point by Brown and Anderson who stated that northern flint types did not reach the Southwest until after 1200 A.D.[40] However, it should be pointed out, in turn, that Brown and Anderson cited the work of Carter to a considerable degree. Roberts, in a review of Carter's work, recalled the earlier thesis of Moorehead and others that certain traits moved into the eastern Pueblo area via the Arkansas River valley.[41]

If valid, Carter's thesis would appear to damage Parsons' derivation of the Pawnee from the Southwest and, by inference, from earlier and more peaceful contacts with the Pueblos. However, as Roberts cautioned in his review of Carter's material,

> . . . Until it is established definitely that Anasazi corn and pumpkins were not present in southwestern New Mexico, it seems more logical to suppose that they reached the Plateau by that route than by a route swinging eastward to miss the Mogollon.[42]

Passing on to other considerations of an economic nature, the eastern Pueblos and the nearest Plains tribes had strongly contrasting basic economies. The Pueblos were dominantly agricultural, although hunting did achieve some prominence.[43] While the Pueblos were separated from the Plains tribes by the semi-agricultural Apache, the Plains tribes located near the Pueblos were hunters to a degree that excluded agriculture. Along the eastern periphery of the Plains were certain marginal, or Prairie, tribes who did practice agriculture as well as hunt. However, certain striking contrasts are illustrated by such facts that Pueblo men did the farming while the farming of the Prairie tribes was done by the women. In their hunting, the Pueblos followed certain procedures strongly reminiscent of those of the Plains. Communal drives for buffalo and

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39 See Paul C. Mangelsdorf and John Otis Brew, *Review* (Science, vol. 102, pp. 515-516, 1945); Volney Jones, Gordon Willey, and Frank H. H. Roberts, Jr, *Reviews* (American Antiquity, vol. 11, pp. 262-269, 1946); and Dan Stanislawski, *Review* (American Anthropologist, vol. 49, pp. 272-275, 1947).

40 William L. Brown and Edgar Anderson, *The Northern Flint Corns* (Annals, Missouri Botanical Garden, vol. 34, pp. 1-28, 1947). See also an earlier paper by George F. Carter and Edgar Anderson, *A Preliminary Survey of Maize in the Southwestern United States* (Annals, Missouri Botanical Garden, vol. 32, pp. 297-322, 1945).

41 Frank H. H. Roberts, Jr., *Carter's Thesis in the Light of Archaeology: the Southwest* (American Antiquity, vol. 11, 1946), p. 267. See W. K. Moorehead, *Archaeology of the Arkansas River Valley* (Department of Archaeology, Phillips Academy, Andover, 1931).

42 Roberts, *Carter's Thesis*, p. 267.

43 Charles H. Lange, *Culture Change as Revealed in Cochiti Pueblo Hunting Customs* (The Texas Journal of Science, vol. 5, in press, 1953).

antelope, a system of coup-counting on such animals as the bear, lion, and eagle, and the weapons employed suggest Plains influences.[44] However, it must be remembered that these are traits which have distributions of much greater scope than simply the eastern Pueblos and adjacent Plains tribes. Hence, there is reasonable doubt as to real significance in such similarities.

Until rather recent diffusion into the Southwest, distinct differences occurred between the clothing of the two sub-areas. The Pueblos belonged to the area of woven kilts, mantas, and sashes, with sandal footgear. The Plains, on the other hand, were part of the tailored skin clothing area with shirts, leggings, and moccasins. Among the Pueblos, clothing was made by the men; among the Plains, the women did this work. Whether the Plains can be credited with affecting Plains-like changes in Pueblo costume is problematical; there is good reason to suspect the southern Athapaskans as a contributing factor. Again, certain Plains influences may have been passed on by way of these same Southern Athapaskans.

Moving to a different topic, a study of kinship systems and their distribution in North America was published by Spier in 1925.[45] Admitting certain shortcomings in his data, Spier grouped the numerous tribes under seven headings and cautioned that such groupings should not necessarily be taken to indicate historical connections between the components. Under the Crow type, Spier included Pawnee, Laguna, and Jemez, adding the possibility of Isleta. Under the Acoma type were listed Acoma, Cochiti, San Felipe, Santo Domingo, Tewa (including San Ildefonso, Santa Clara, San Juan, and Nambé), and Kiowa. Certain parallels or similarities were noted by Spier between the Acoma and Crow systems although he believed the Acoma system was even closer to his Salish type. Other Acoma features Spier interpreted as possibly representing "a transformation in the direction of Spanish and English terminology among these Rio Grande peoples."[46]

More recently, in a detailed study limited to the western Pueblos, Eggan commented, "Whatever may be the ultimate fate of the other representatives of the Acoma type, the present analysis indicates that the Acoma system [i.e., the system of Acoma Pueblo specifically] is a lineage system, primarily, and belongs in the Crow subtype."[47] Eggan confirmed Spier's classification of Laguna as belonging to the Crow type.[48] Thus, it would appear that an

44 *Ibid.*

45 Leslie Spier, *The Distribution of Kinship Systems in North America* (University of Washington Publications in Anthropology, vol. 1, no. 2, 1925).

46 *Idem*, p. 73.

47 Eggan, *Social Organization*, pp. 247-248.

48 *Idem*, p. 285.

appreciable number of tribes, representing both sub-areas involved here, were of the Crow type. Again, however, the Crow system embraces many other members from other areas of North America, and once more the immediate significance of this similarity must be questioned.

An interesting contrast between the sub-areas is seen in the presence of polygyny among the Plains groups while monogamy has been a universal rule among the entire list of Pueblos despite a mythology and folklore that shows some incidence of polygynous families among the remote tribal ancestors.[49] Some reason for suspecting Plains influences, although some other explanation could be equally justified, is seen in the patrilineal manifestations present in the Rio Grande Pueblos and lacking in the western Pueblos.

Parsons' Pueblo-Pawnee ceremonial parallels have already been noted. In general, the similarities appear to be of individual items rather than basic patterns. A possible explanation for this may well be found in the pattern contrasts expressed by Benedict with her familiar dichotomy of the Apollonian Pueblos and the Dionysian Plains.[50] While the application of Nietzche's characteristics do not apply to either group with perfect precision, as Benedict herself pointed out, the contrasting phrasings of the two ways of life are generally accepted. Such contrasts would certainly tend to minimize the diffusion of innumerable culture patterns at the same time they did permit diffusion of individual elements.

As mentioned, Taos Pueblo is most frequently singled out as having had the strongest infiltration of Plains elements. The degree to which other Pueblos have received Plains traits directly or by way of Taos, or extinct Pecos, remains to be ascertained. Aside from the usual costuming and certain ceremonies traceable to the Plains,[51] one of the better known manifestations of this infiltration has been the adoption by Taos, alone of all the Pueblos, of the Peyote Cult. LaBarre stated that "In the Plains the most important tribes in the diffusion of the peyote cult were the Kiowa, the Comanche, and to a lesser degree perhaps, the Caddo."[52] LaBarre gave a date of 1907, if not earlier, for the acquisition of peyote by the people of Taos from the Arapaho and Cheyenne who served as the middlemen in its diffusion from the Kiowa and Comanche.

49 For example, see some of the stories in Ruth F. Benedict, *Tales of the Cochiti* (Bulletin, Bureau of American Ethnology, no. 98, 1931).

50 Ruth F. Benedict, *Patterns of Culture* (New York, 1934), Chapter IV.

51 See sections in Elsie C. Parsons, *Taos Pueblo* (General Series in Anthropology, no. 2, 1936); George L. Trager, *A Status Symbol and Personality at Taos Pueblo* (Southwestern Journal of Anthropology, vol. 4, pp. 299-304, 1948).

52 Weston LaBarre, *The Peyote Cult* (Yale University Publications in Anthropology, no. 19, 1938), pp. 110-111, 122.

He noted, however, an incident as early as 1720 when a Taos Indian had taken peyote and encountered trouble with his tribesmen. "In any case the history of peyote at Taos has been a stormy one," LaBarre noted, and added that Parsons had blamed the weakness of the kachinas at Taos for its obtaining a foothold there. In 1923, there were said to be only 52 "peyote boys" in a total population of 635.[53]

Additional factors which would tend to minimize cultural exchanges between these areas are seen exemplified in an incident cited by LaBarre when a living Kiowa threw some paraphernalia in the river and his relatives were horrified, saying that this was done only after a death.[54] In contrast, considerable emphasis is placed by the Rio Grande Pueblos on putting in the river prayersticks, other offerings, and the used evergreen from ceremonial dance costumes. Again, Plains ceremonialism varies from that of the Pueblos in having a ritual circuit which moves clockwise. The Pueblos, in contrast, follow a counterclockwise movement in their ceremonies. In the literature examined, one exception to this rule was found. Interestingly enough, this was at Taos where it occurred in the Round Dance, Scalp Dance, and Peyote circuit. Parsons also noted that the Taos speak of the directions in the set sequence of east, north, west, south, and again east, making a fifth direction instead of the four or six found in other Pueblos. Contrary to the above-mentioned sunwise ritual circuits, the Taos "box the compass" in a counterclockwise manner, the same as the other Pueblos; this Taos trait was considered by Parsons to be more fundamental than the reversing of the circuit in the few ceremonies noted by her.[55]

Parsons also noted that the Buffalo dancers at Taos (and Hopi) had curing capabilities, and that among the Kiowa the buffalo was considered a medicine animal.[56] Cochiti Buffalo dancers are also believed to have medicinal properties, although at Cochiti, as among other Keresans, the bear is the foremost medicine animal.

Analyzing the music of the North American tribes, Roberts grouped the Southwest with the Plains and Plateau, at the same time noting overlaps with Californian and Eastern Woodland music.

> Typical Plains music has long permeated that of the eastern and northernmost Pueblos and most of it is so distinctive as to be readily identifiable. But it is

53 *Ibid.*

54 *Idem*, p. 103.

55 Parsons, *Taos Pueblo*, p. 105.

56 Parsons, *Taos Pueblo*, p. 94; Elsie C. Parsons, *Kiowa Tales* (Memoirs, American Folk-lore Society, no. 22, 1929), pp. 116-117.

also a more recent intruder and evidently has entered no deeply religious old ceremonial dances, such as those for the Green Corn and the Basket Dance. The Tesuque Indians sing Comanche songs for war dances, of the origin of which they are quite aware, and they are also sung less commonly at San Ildefonso, Santa Clara and elsewhere. . . .

At Taos, Plains music is as common as any other, coming presumably mostly through contacts with the Kiowa, with whom frequent visits are exchanged. During the famous song contests of moonlit summer nights, . . . quantities of beautiful songs of typical Plains character are heard; but at the Green Corn Dances one might as well be at San Ildefonso. Taos indigenous music, if there is such, remains to be identified.[57]

Later in her paper, Roberts commented as follows.

Typical Plains music prevails for the most part, however, east of the Rockies, and its style has had an influence in all directions, . . . It has penetrated to the eastern Pueblos, by two routes, north and south, while Pueblo music apparently has not, in like measure, penetrated the Plains. . . . However, it is possible that in such ceremonies as those of the Pawnee dealing with corn, which suggest southern origins, certain songs will be found to resemble a type that may also occur in some Pueblo corn songs, once the multiple components of Pueblo music become unravelled and clarified, and this, it may be assumed, will be the type that came from the south, *i.e.*, probably Mexico. . . .[58]

Thus, musical data take their place with other phases of culture in further demonstrating similarities between elements of Rio Grande Pueblo culture and Plains culture. Again, additional data and more precise data are needed.

CONCLUSIONS

Throughout the data presented for physical anthropology, linguistics, archaeology, and ethnology there have been numerous instances of similarities between the elements of the two sub-areas, the Rio Grande Pueblos and the Plains. There are many more instances, too numerous to consider here, of distinct differences between the two. This is as one would expect in view of the fact that the two sub-areas belong to two distinct culture areas. In summarizing the data presented, five points should be noted.

First, despite voluminous data pertaining to the tribes of both sub-areas, there is a discouraging lack of material possessing rich enough detail and sufficiently broad scope to permit satisfactory comparative research at this time.

Second, amplification of the currently inadequate data involves two processes.

57 Helen H. Roberts, *Musical Areas in Aboriginal North America* (Yale University Publications in Anthropology, no. 12, 1936), p. 34.

58 *Idem*, p. 35.

One is the gathering of new information by field personnel trained to be aware of past deficiencies in approach and to exploit unexplored lines of investigation. With increased hindsight and broader perspectives as well as an expanding number of scholars, the data should be greatly improved. The other process requires that those who have published their research recognize an additional responsibility of bringing their material up to date periodically in light of pertinent research advancements.[59]

Third, many cultural elements noted as present in the tribal cultures discussed here are known to be, or at least suspected of being, characteristic of a much greater portion of North America. Many are typical of western North America, at least, and hence their immediate presence in the eastern Pueblos and adjacent Plains cannot be considered overly significant in the problem at hand.

Fourth, there is need for careful reëvaluation of evidence and a consideration of all aspects of the dynamics of invention and diffusion. Whether individual traits and complexes have resulted from multiple inventions and parallelism or from diffusion, the factor of time and the position of the particular item within the context of the individual culture histories must be considered. In the current discussion, this would involve inter-pueblo diffusion as well as Plains-to-Pueblo diffusion. In large measure, this calls for individuals conducting thorough research pertaining to more than one culture or time period in order to achieve additional horizons of perspective.

Fifth, the material reviewed here further demonstrates a recognized quality of the process of diffusion whereby individual traits spread more easily than do cultural patterns. Repeatedly, selective borrowing has appeared in the form of specific Plains elements—physical, linguistic, material culture, and non-material culture—which have been taken over by one or more of the Pueblos, occasionally as complexes. However, this has invariably been an adoption wherein the trait was adjusted to conform to existing Pueblo patterns. There is little to suggest that contacts between the two sub-areas ever achieved the prolonged intensity commonly believed necessary for such pattern changes. Consequently, the appearance of certain Plains items within the contexts of the neighboring, but alien, Pueblo cultures should not be considered a surprise but rather an expected phenomenon well within the range of prediction.

THE UNIVERSITY OF TEXAS,
AUSTIN, TEXAS

59 Florence Hawley Ellis made this point in her discussion of *Pueblo Social Organization and Southwestern Archaeology*, p. 149.

ARCHAEOLOGICAL DATING BY CHEMICAL ANALYSIS OF BONE

S. F. COOK AND R. F. HEIZER

THE THEORY underlying a chemical dating system is quite simple. It rests upon the assumption that within human or animal bones, subsequent to burial, certain chemical changes occur in a progressive manner such that there is a continuous accumulation or depletion of substance. Chemical anaylses will then provide a series of figures with which the corresponding times and dates can be equated.

Throughout the past several years the writers have been engaged in an attempt to determine whether the above theoretical approach can be justified in practice. They have subjected to various types of analysis several hundred bones from a series of nearly thirty archaeological sites within the state of California and have supplemented this series with shorter ones from the southwestern states, from New York, and from Kentucky. The results, from the standpoint of dating, are presented here.

In order to construct an adequate dating system based upon chemical data two prerequisites must be satisfied. First there must be a continuous numerical scale, derived from the chemical analyses, according to which the data from a series of sites may be arranged. Such a scale, ranging from the earliest to the most recent times, will give us by itself the *relative* sequence of the sites. Secondly this scale must be tied, at least at two points, into the flow of chronological or clock time in order that we may get the *absolute* sequence of the sites and, by interpolation, thus permit the investigator to fix a *date* for each site.

In so far as our investigations have taken us there is nothing in the chemical data *per se* which will permit the satisfaction of the second prerequisite. On the other hand different lines of approach make the task possible. With respect to the most recent period there is historical or protohistorical information which enables us to set the lower time limit, as it were, of the latest material. For the prehistoric period we are now in possession of sufficient key dates obtained by the radiocarbon method to pin down a minimum of sites with considerable accuracy. Dating by carbon-14 must therefore be the significant point of reference as far as absolute time is concerned.

Since chemical determinations of bone from our group of California sites is the most extensive of which we have knowledge, it will serve as a test series. There are twenty-eight sites, for two of which (SJo-68 and Mnt-282) we have

dates by radiocarbon. The carbon source was charcoal gathered in the mound matrix and the dates were determined in the laboratory of Prof W. F. Libby at the Institute for Nuclear Studies, University of Chicago. The dates were respectively 4,050 ± 160 and 1,879 ± 250 years BP (Before Present).[1]

The chemical criterion for age is based upon analyses for several components of the bone. We have available data for calcium, phosphate, carbonate (acid extractable carbon), water, organic nitrogen, and organic carbon. The first three comprise the bulk of the mineral, or inorganic, framework of bone and have been shown by one of us in a previous paper[2] to be easily influenced by local soil conditions and hence poorly adapted to use for exact dating. The organic carbon, nitrogen, and water have been shown to be much more stable[3] and hence form a better basis for age computations. There is no *a priori* reason to suppose that any of these three substances constitutes better evidence than the others. Hence they may be employed collectively.

The analytical data are expressed in the form of percent by weight of carbon, nitrogen, and water in the individual bone and hence as the mean percentage for each component in all the bone samples from a given site.[4] The total percentage is then readily determined.

For the construction of a time scale the most direct procedure is to arrange the sites according to the percentage values in descending order, since the smallest values will denote the earliest sites and vice versa. However, it is necessary also to establish the upper and lower limits of the scale. The lower limit (oldest) is of course represented by that bone (of hypothetical existence) which contains no organic matter in it at all, and for which the percentage value from analysis

1 The dating method by means of natural radiocarbon contained in organic materials is now widely known. The best single reference on the subject is W. F. Libby, *Radiocarbon Dating* (Chicago, 1952). The dates cited here for California sites SJo-68 and Mnt-282 were first published in Fredrick Johnson (ed.), *Radiocarbon Dating* (Memoirs, Society for American Archaeology, no. 8, 1951), p. 13, samples 440, 522; p. 19, sample 628. The important matter of reliability of the radiocarbon dating method has already accumulated an extensive bibliography. See, for example E. C. Anderson and H. Levi, *Some Problems in Radiocarbon Dating* (Det Konigelige Danske Videnskabernes Selskab, Mat. Fys. Medd., vol. 27, no. 6, Kobenhavn, 1952) and F. E. Wickham, *Variations in the Relative Abundance of the Carbon Isotopes in Plants* (Geoch. Cosmoch. Acta, vol. 2, pp. 243-254, 1952).

2 S. F. Cook, *The Fossilization of Human Bone: Calcium, Phosphate and Carbonate* (University of California Publications in American Archaeology and Ethnology, vol. 40, no. 6, 1951).

3 S. F. Cook and R. F. Heizer, *The Fossilization of Bone: Organic Components and Water* (Report, University of California Archaeological Survey, no. 17, 1952).

4 The percentage values for water are reduced by the factor 2.5 to conform to the finding, previously reported (Cook and Heizer, *op. cit.*), that approximately this amount of water is uniformly associated with the inorganic, rather than the organic, fraction of bone.

is consequently zero. The upper limit (youngest) is less obvious. Let us not forget that we are dealing with *fossil* bone. It is evident that no fossil bone which we possess would contain the highest possible proportion of organic matter because no matter how recent it is the bone must have been buried a finite period of time and during that time must have lost at least traces of its substance. Hence fossil bone at the recent end of the time spectrum approaches fresh, or normal, bone as a limit. Since this is true and since we know nothing of the very first changes which go on after burial, it is logical to use the values for fresh bone as the upper limit of the scale.

There are numerous analyses of freshly killed human and animal bone to be found in biochemical literature. These vary in detail, however, and furthermore have been obtained by widely different analytical methods. It thus seems advisable to make our own analyses. We did so using eight samples from the shaft of a fresh beef femur and proceeding in all respects as we did with the analyses of fossil bone. We found the mean percentage by weight of nitrogen, carbon, and organically bound water to be 18.33. The scale therefore must run from 18.33 to zero.

Three intermediate points can be secured. The radiocarbon dates are known for sites SJo-68 and Mnt-282 and the total percent carbon, nitrogen, and water contained in bones from these sites has been computed. These values (together with that for beef bone) can be plotted directly and also logarithmically, as shown in Figure 1. The third point can be derived indirectly. Of the twenty-eight sites investigated there are eight which are beyond reasonable doubt of recent origin: Sac-6, Mnt-281, CCo-138, Ala-328 (upper level), Marin County Late sites, Santa Rosa Island, San Miguel Island and Santa Cruz Island sites.[5] Collectively, and from archaeological and cultural information, we can ascribe to them an approximate average age of three hundred years. Perhaps they are older, but taking the average age at four or five hundred years would not radically change the over-all picture.

By graphic interpolation in the curves as given in Figure 1 or by computation from the direct percentage values, or their logarithms, estimated dates can be assigned to the twenty-eight sites. These are shown in column D of Table 1.

These dates preserve in a general way the broad age trend which one would expect to find in this group of sites, but the individual estimates are extremely

5 Maps showing the location of these sites have been published in S. F. Cook and R. F. Heizer, *The Physical Analysis of Nine Indian Mounds in the Lower Sacramento Valley* (University of California Publications in American Archaeology and Ethnology, vol. 40, no. 7, 1951).

TABLE

Analytical results and calculations of age from c

A *Site designation*	B *Density*	C *Total percent carbon, nitrogen, and water*	D *Years B. from col. by interp lation*
Fresh beef bone	2.000	18.33	0
			Californ
Ala-328 (lower)	1.698	13.08	230
Ala-328 (upper)	1.778	14.17	160
CCo-137	1.572	7.58	2500
CCo-138	1.618	12.70	250
CCo-141	1.881	16.25	60
Sac-6	1.485	8.22	1900
Sac-21	1.510	11.68	410
Sac-43	1.662	9.55	960
Sac-104	1.645	5.17	6350
Sac-107	1.551	3.81	8700
Sac-151	1.458	5.72	5460
SJo-56	1.783	8.45	1560
SJo-68	1.738	6.61	4050
SJo-142	1.580	3.43	9340
Fre-48	2.400	1.63	12250
Tul-18	1.658	15.11	100
Marin Co. (Late)	1.291	9.08	1170
Marin Co. (Middle)	1.328	8.30	1700
Mnt-281	1.439	11.16	510
Mnt-282	1.424	8.19	1880
Shalwaj	1.541	9.78	880
Tecolote	1.644	8.13	1890
Las Llagas	1.620	10.10	770
Santa Rosa	1.806	14.83	120
San Miguel	1.827	13.72	180
Santa Cruz	1.936	15.50	90
SBa-7	1.431	6.67	3940
LAn-1	1.421	3.54	9200

TABLE 1

e from chemical data using carbon-14 dates as guides

D *Years B. P. from col. C by interpolation*	E *Total percent in col. C corrected for density*	F *Years B. P. from col. E by interpolation*	G *Years B. P. by other methods*
0	18.33	0	0 (observations)
California			
230	15.42	280	
160	15.94	210	
2500	9.64	2750	
250	15.70	240	
60	17.29	80	
1900	11.08	2000	
410	15.48	260	
960	11.49	1780	
6350	6.29	5140	
8700	4.92	6550	
5460	7.84	3940	
1560	9.48	2860	
4050	7.61	*4050*	4050 (carbon-14)
9340	4.34	7240	
12250	1.36	13800	
100	18.22	10	
1170	14.06	640	
1700	12.50	1310	
510	15.51	260	
1880	11.51	*1880*	1880 (carbon-14)
880	12.69	1250	
1890	9.90	2620	
770	12.47	1340	
120	16.43	160	
180	15.02	300	
90	16.02	200	
3940	9.31	2960	
9200	4.98	6450	

TABLE

Southwestern, New York, and K

A	B	C	D
Site designation	*Density*	*Total percent carbon, nitrogen, and water*	*Years B. P. from col. C by interpolation*
Fresh beef bone	2.000	18.33	0
			Southwest
Soda Canyon	2.200	19.71	——*
White Mound	1.993	14.19	120
Hawikuh	2.008	20.24	——*
Elden Pueblo	2.008	15.96	50
			New York
Wadsworth	1.454	7.83	2150
Sackett	1.276	8.83	1450
Frontenac	1.417	7.69	2300
			Kentucky
Fort Ancient	1.354	5.28	6200
Adena	1.626	13.02	220
Archaic	1.578	6.08	4900

* Values negative, hence impossible. The density values are estim

TABLE 2

k, and Kentucky bone series analysis

D	E	F	G
Years B. P. from col. C by interpolation	*Total percent in col. C corrected for density*	*Years B. P. from col. E by interpolation*	*Years B. P. by other methods*
0	18.33	0	0 (observations)
Southwest			
——*	17.92	20	920 (tree ring data)
120	14.21	560	1175 (tree ring data)
——*	20.20	——*	520 (tree ring data)
50	15.90	150	1170 (tree ring data)
New York			
2150	10.86	2060	
1450	13.85	720	
2300	10.85	2060	4370-5385 (carbon-14)
Kentucky			
5200	7.80	3980	
220	16.01	220	1170-1510 (carbon-14)
4900	7.71	4020	4900-5300 (carbon-14)

s are estimates based upon insufficient data.

erratic and unsatisfactory. Both the trend and the individual variation between sites can be appreciated if we segregate three subdivisions according to the cultural period to which the sites correspond. The first division would be that embracing the most recent sites and would include the eight previously mentioned. The second division would include the sites which most probably fall in the intermediate cultural period: Ala-328 (lower level), CCo-137, CCo-141, Sac-21, Sac-43, Sac-151, Tul-18, Marin County Middle Horizon sites, Mnt-282, Shalwaj, Tecolote, and Las Llagas. The third division would contain the sites of probable early culture: Sac-104, Sac-107, SJo-56, SJo-68, SJo-142, SBa-7, Fre-48, and LAn-1.[6] The *average* dates for the three groups, respectively, in years Before Present are 550, 1,400, and 6,925 whereas the *ranges* of dates within the groups are, in the same order; 90 to 1,900, 60 to 5,460, and 1,560 to 12,250. The average dates may perhaps conform approximately to the time periods during which the three cultures existed in California. Nevertheless the overlapping of the ranges is far greater than can be allowed, and some of the "dates" for individual sites are clearly absurd.

It is instructive to consider at this juncture the graphs shown in Figure 1. Here are plotted the four points for which we have satisfactory non-chemical evidence with respect to date. In the direct plot these points fall along a smooth curve. When the logarithm of the organic content instead of the direct value is plotted against time the last three points fall nearly, but not quite, in a straight line whereas the first part of the plot is still clearly a curve. There is good reason to believe, therefore, that the curve contains at least two components.

It is worth while to pursue further this theoretical approach. For the time scale presented above we used the direct percentage values for total carbon, nitrogen, and water. It is possible however to utilize absolute, rather than relative or percentage values for these components. For this purpose the density of the bone is of critical importance.

The apparent density of fresh bone (beef) is very close to 2.00—that is each cubic centimeter of the bone weighs 2.00 grams. Therefore if the proportion of carbon, nitrogen, and water in the bone is 18.33 percent, the actual weight of these substances is 366 milligrams per cubic centimeter of bone. Now,

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6 These sites are classed as early or ancient on the basis of their artifact assemblages, or through analysis of the fluorine content of the human and Pleistocene animal bones found in the deposits. See R. F. Heizer and S. F. Cook, *Fluorine and Other Chemical Tests of Some North American Human and Animal Bones* (American Journal of Physical Anthropology, vol. 10, pp. 289-303, 1952).

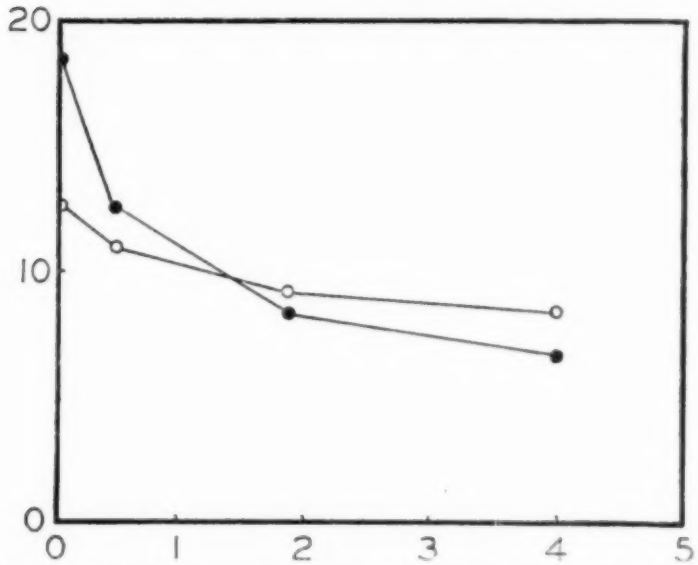

FIG. 1. Change of percent organic matter with time (see discussion in the text). Solid dots are the direct plot, the circles the logarithms. The ordinate shows the percentage values for the direct function. The numerical values for the logarithms are omitted. The abscissa shows time in thousands of years.

if a fossil bone were to show a density of 1.50 and the percentage of carbon, nitrogen, and water were then 10.00 per cubic centimeter of bone, there would be 150 milligrams of the three components, and the loss of organic material would be at least proportional to the difference between fresh and fossil bone, or 366 minus 150 milligrams.

It will be noted that the percentage values of the carbon, nitrogen, and water tend to diminish with the age of the sample. This indicates that the organic substances are disappearing *differentially* with respect to the total substance. At the same time the total substance may, in varying degree, be reduced, as is demonstrated by the low density values secured with all but a very few of the samples. These findings constitute further evidence for the existence of at least two processes during fossilization. One of these appears to be a consistent reduction in the *relative amount* of organic matter as shown by the generally falling percentage values. The other is a change—usually but not

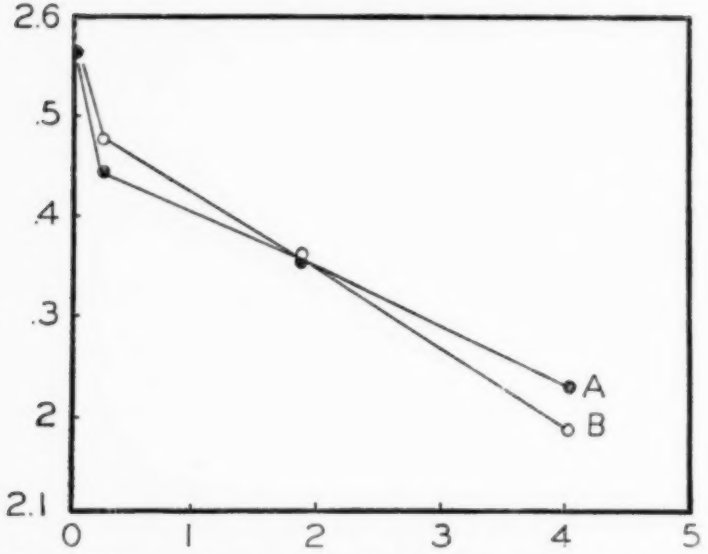

FIG. 2. Change of organic matter in time. The ordinate gives the values for the logarithm of the calculated number of milligrams of organic matter per cubic centimeter of bone (see text for discussion). The abscissa shows time in thousands of years. The two graphs, A and B, show the data as calculated in two different ways as described in the text.

necessarily a reduction—in the total substance of the bone, including simultaneously organic and inorganic matter.

What we are primarily interested in is the differential removal of organic matter, rather than its incidental loss as an accompaniment to overall destruction of original bone substance. Nevertheless our analytical data shows us only the terminal state of the bone. There is no indication of the rates which have characterized these processes in the past, nor of changes in rate which may have occurred from time to time. Hence for backward projection we have to rely upon purely empirical methods which may or may not yield sensible results. Even if the results are satisfactory, the method still has little value because it is based upon pure assumption rather than upon experimental findings.

To illustrate: in the case of each site the product of the density and the total percent of carbon, nitrogetn, and water gives the total milligrams of these elements found in each cubic centimeter of bone. If, now, we assume that the differ-

ence between 2.00 grams and the observed weight of a cubic centimeter of bone represents material lost *en masse*, then 18.3 per cent of the latter would be carbon nitrogen, and water. Let us add this value to that obtained by multiplying the density by the total observed organic matter. Taking this result for each site, and plotting all the results logarithmically we get Figure 2,A (the same four points are used and are derived in the same manner as in Figure 1). This graph is certainly linear for the distance represented by the last three points, and may be made linear throughout the entire range by adding a constant to all the points except that at the origin. The thesis that fossilization is fundamenally a logarithmic function of time is certainly supported by this method of plotting the data but no further information is secured concerning its nature, nor is the dating of the sites materially improved.

A simpler but more empirical procedure is merely to multiply the percentage value for total carbon, nitrogen, and water by the ratio of 2.00 (density of fresh bone) to the observed density of the fossil bone. There is no theoretical justification for this procedure, but the logarithmic plot is definitely linear for the last three points and more closely linear throughout (Figure 2, B). Moreover the dating of the sites is somewhat improved. Using the same three groups as were specified above we get for the late, intermediate, and early cultural horizons respectively average dates in years BP 500, 1,460, and 6,130. The ranges to correspond are 160-2,000, 10-3,940, and 2,860-13,800. If we could explain away or eliminate the results for only a few sites (notably Sac-6, CCo-141, Tul-18) the remaining data would present a dating picture which would be rational even if not very accurate. But this very supposition exposes the basic weakness of the entire structure which is erected upon arbitrary mathematical manipulation rather than upon clear knowledge of what has taken place within the fossilized bones.

Further difficulty arises when an attempt is made to determine dates of bones from other areas by means of the curves constructed with results from California alone. Thus the Southwestern series (see column F, Table 2) give preposterous results in the light of the probably fairly accurate tree-ring dates. The New York series shows almost identical "chemical" dates for bones from the Wadsworth and the Frontenac horizons when it is known from other evidence that the former is relatively recent and the latter quite ancient.[7] In the Kentucky series the chemical data give a result for the Archaic group which is reasonably close to that found with carbon-14.[8] However this coincidence may be entirely fortuitous since the figure in column F, Table 2 for the Adena group diverges widely from the date

7 Johnson, *op cit.*, pp. 31-32.
8 *Idem*, p. 30.

assigned by the radiocarbon method. It is evident that any attempt to cross-apply California results to any other region is foredoomed to failure.

It is regrettable that a long and tedious investigation should have yielded results of no greater direct value for archaeological dating than those here outlined. The difficulty is inherent in the nature of the material. What we desire is a chemical alteration in fossil bone which proceeds with the course of time unaffected by any external physical or chemical circumstance. Such an alteration, as far as we are aware, has not yet been discovered.

University of California
Berkeley, California

A SUMMARY AND ANALYSIS OF "THE FAMILIAL STRUCTURE OF JAPANESE SOCIETY" BY TAKEYOSHI KAWASHIMA[1]

MICHIO NAGAI AND JOHN W. BENNETT

INTRODUCTORY NOTE

LANGUAGE BARRIERS have made Western contacts with Japanese social science infrequent and thin. Few American anthropologists are aware of the very considerable body of empirical and theoretical analysis of Japanese and Oriental society and culture that has accumulated in Japan in the past seventy years—a body of materials on a particular society as full and detailed as that for any Western nation. Since translations are expensive, and publication of scholarly works of this type difficult to arrange, this summary and analysis of Professor Kawashima's important work on the Japanese family system is offered as a means of acquainting American scholars with one of the best and most recent studies on that subject made by a distinguished Japanese social scientist.

An awareness of the importance of family studies on Japanese society has already appeared in the West. It is coming to be understood that since roles and behavior patterns in the familial and kinship institutions of Japanese society have importance for political and economic institutions as well, it is of importance to understand the historical background and significant type or models of these kinship patterns. Professor Kawashima's book, while not a source of original data on modern Japanese family relations, contains a pioneering and valuable interpretation of the historical and typological aspects of kinship institutions in Japanese society. The reader is invited to compare Professor Kawashima's findings with the conclusions of Ruth Benedict in *Chrysanthemum and the Sword*.[2]

Professor Kawashima's book received the Mainichi Newspaper Literary Culture Award for 1948, a significant honor in Japanese letters. It may strike the Western reader as strange that a book on family and kinship institutions

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1 Takeyoshi Kawashima *Nippon Shakai to Kazokuteki Kosei* [The Familial Structure of Japanese Society] (Tokyo: Nippon Hyoronsha, 1948).

This summary of Prof Kawashima's book has been prepared by the staff of the Research Project in Japanese Social Relations at Ohio State University. This project is engaged in the analysis of a considerable body of data on Japanese society and culture collected during the Japan Occupation, and is supported by the Office of Naval Research and the Rockefeller Foundation.

2 New York: Houghton Mifflin, 1946.

should receive a literary award, and this in itself may be seen as evidence of the importance of family-kinship institutions in Japanese society. Family has long been a subject of major interest to Japanese scholars and social scientists, and they have shown awareness of the important tendency for social relations in Japanese society to be patterned in ways similar to those relationships ideally defined and practised in the "family system." During the Occupation period, attention to the family was marked by the promulgation of extensive reforms in the Family Code, which in general pointed toward greater independence in the respective roles of family members and modification of such hierarchal tendencies as primogeniture.

For some Japanese scholars and publicists, the "family problem" has come to be seen as a constellation of obstacles in the path toward complete democratic renovation of Japanese social life; consequently emphasis has been placed on the need for reforms in the family area. Prof Kawashima's book may be considered in part as a document illustrating this perspective. It contains an historical and theoretical analysis of the family system, as well as a reformist point of view; he is concerned in part with demonstrating or suggesting the way in which family patterns impede or hinder full democratization of Japanese society.

However, in the context of Japanese family studies, the book has an additional significance. While previous studies of the family have contributed quantities of data, they have tended to be short on conceptualization and systematic treatment. Prof Kawashima's approach helps to supply this needed order and system to the field. As he puts it,

> The predominance of feudal-*samurai*-Confucian family ideologies has led to a lack of critical interest in the family system, and consequently empirical research on the subject is incomplete and insufficient. As far as critical appraisal and analysis of the family life of the Japanese people are concerned, tremendous difficulties must be faced (p. 6).

Thus, while Japanese scholars have done much work on family and kinship, the data collected have been largely folkloristic and demographic—a critical, theoretical, and empirical analysis of family roles, value orientations, and relationships being absent. Consequently, Kawashima's objectives center upon a critical and theoretical analysis of the Japanese family system in an attempt to supply a much-needed alternative to the existing trends in research.

Professor Kawashima's professional orientation lends his work certain definite characteristics. He is a Professor of Law at Tokyo University, and has become identified with a new empirical sociological approach to the study of Japanese

legal institutions and concepts. He was a member of the Committee for the Revision of the Civil Code during the early years of the Occupation. According to Prof Kawashima, the fundamental problems in the Japanese sociology of law center on investigations of the interrelations of modern Western legal concepts and traditional Japanese concepts in the legal institutions of Japan. Thus his study of Japanese family and kinship institutions emphasizes such concepts as "rights" and "duty," and the whole of his research should be seen against the background of his interests in the incorporation of normative patterns of family relations in laws and legal institutions in general.

The book is composed of three major sections: (1) *The Family System and Japanese Society*—a discussion of the prevalence of family relationship patterns in Japanese institutional structures, and some of the historical roots of these patterns in Asiatic feudal organization; (2) *Normative Consciousness of the Family System*—a study of the predominant normative patterns in family relationships and in Japanese law; (3) *The Family System and the Civil Code*—a more detailed discussion of the extent to which these normative patterns have been incorporated in common law.

The book is really a collection of related essays, and not an integrated work. The "frame of reference," as it is called below, is abstracted and analyzed out of one chapter in the second section of the book, but is presented first because Kawashima's other essays seem to be based upon it.

FRAME OF REFERENCE

To describe and clarify the characteristics of the Japanese family system, Kawashima compares it to three other types of family organization. An understanding of these three "ideal types"[3] is therefore fundamental to an understanding of his book. They are as follows:

1. *The patriarchal family.* This type is characterized by the relationship

3 Kawashima exhibits a certain vagueness in the definition and use of these three types. Primarily, he conceives of them as "ideal types" of family organization, but he also gives them historical-developmental identifications. Thus he sees social history as proceeding from the first type, through the second, to the third. The reader will also notice that Kawashima's types contain many undifferentiated concepts. This is a methodological tendency he shares with a number of other institutional and historical sociologists; e.g., Max Weber. For example, the term "feudalism" is commonly used to designate a certain type of whole social system, rather than a family system specifically. Therefore, when Kawashima uses the term "feudal family," the exact relationships between "feudal society" and the family system found within feudal society should be explained. Kawashima evidently uses the term "feudal" with some causal or determinative significance, but does not explain or clarify this. The intervening variables of value orientations, economy, etc., are thrown together, so to speak, and are not analyzed with reference to possible independence.

between a patriarchal family chief and the slave-status-like members of his family. The relationship patterns are normatively those of dominance-submission. Kawashima feels that this type of family system is exceedingly ancient in human society, and has tended to accompany certain types of economic and political institutions—specifically, simple economy and technology, and an authoritarian status system.

2. *The feudal family.*[4] In this type of organization feudal relationships exist between the family members rather than patriarchal. The relations between the chief-father and the family members are not cast on the master-slave, dominance-submission model, but are a matter of defined, patterned reciprocity—similar to the "rights and duties" defined in the relations of lord and vassal.

3. *The modern family.* This type, which might also be described as conjugal-nuclear, is seen by Kawashima as the latest in an historical progression, and reflects the growing emphasis on *gesellschaftlich* or "contractual" relations in modern industrial national society. Thus the type accompanies a growing complexity in technology, economy, and institutions in general.

According to Kawashima, these three ideal types of family organization are exemplified most clearly in the family systems of three historical societies: (1) China, where the classic ideal Confucian family was patriarchal; (2) medieval England, which exemplified the feudal type; and (3) the contemporary United States, which possesses a version of the modern, or conjugal-nuclear type.

THE IDEAL TYPE OF THE JAPANESE FAMILY SYSTEM

Professor Kawashima compares the normative structure of the Japanese family system to the ideal types just presented. Compared to the patriarchal ideal type, the Japanese family system, while possessing some elements of the absolutist, dominance-submission pattern, also exhibits features of the feudal "rights and duties" conception. Duty and rights in Japanese family relations are verbalized and taught didactically as the concepts of *ko* (duty to parents) and *on* (*on* refers to obligations between individuals, or one's "right" to anticipate reciprocity). Kawashima points out that compared to the Western *abstract* notion of "duty," the Japanese *ko* has a much more *concrete* meaning; the same applies to the comparison of the Western abstract notion of "rights" with the more particularized Japanese *on*. In the Japanese system, both *ko*

4 Kawashima's distinction between patriarchal and feudal types is based on Max Weber, *The Theory of Economic and Social Organization* (New York: Oxford University Press, 1947), pp. 346-351, 373-378.

and *on* are *defined specifically for given situations,* and as such they become inviolable rules of family relationships.[5]

Such norms as *ko* to the parents and *tei* to the husband often give the appearance of eternal, general laws governing the relations of parent and child, and husband and wife. But *ko* and *tei* by no means imply generalized fidelity in the abstract; neither are they based on the pattern of mutual respect of individuals in a modern, democratic society. They are essentially one-sided obligations of people in lower status positions to those in higher positions (pp. 9-10).

According to the author, the Japanese *ko* and *on* can be understood even more completely when they are compared to the generalized *Chinese* concept of *ko,* which is a distinctive feature of the Chinese Confucian family system. This Chinese patriarchal concept of *ko,* which is an *absolute* abjuration to serve and honor the parents, is modified in the Japanese normative structure by the concept of *on* or obligation. That is, one carries out *ko* to the parents only when one receives *on* from them.[6] This concept of *on* is a typically "feudal" concept; that is, a concept which stresses reciprocal rights and duties rather than absolute obedience:

In contrast to the absolute, unconditional *ko* in the classic Confucian system, a *conditional ko* appears in our Confucianism, in which the emphasis is placed on the equivalence of *ko* to *on*. . . . In the former [patriarchal type] children are powerless and without any rights with reference to patriarchal authority, and *ko* is therefore absolutely unconditional. In the latter [Japanese society], even the children are "free actors" toward the parents in certain respects, and therefore the relations between parents and children are founded on the concept of conflict between free actors (p. 108).

The difference emphasized above can be found also in the economic and political institutions of Japanese society, especially during the Tokugawa feudal period. Thus, in a pure patriarchal system, people become slaves of the ruler and of those who hold the means of production in their hands, while in a feudal system, as illustrated in certain aspects of Japanese feudal society, control and domination are *indirectly* exercised through the apportionment of land.

5 Actually, the distinction between the Western and the Japanese concepts is a matter of some complexity, and Kawashima's one-dimensional comparison on the abstract-concrete axis is by no means the whole story. In some respects the Western concepts are closely similar to the Japanese; in others, they are widely variant. An application of systematic concepts like the Parsonian "pattern variables" must eventually be made (see Talcott Parsons, *The Social System,* Glencoe: The Free Press, 1951, pp. 58-67, for definitions of the pattern variables).

6 See Benedict, *Chrysanthemum and the Sword,* Chapts. 5-7. The critical difference between Kawashima's and Benedict's analysis of *ko, on,* and other concepts will be suggested later.

A vassal receives land from his lord, and only because of this grant, or fief, does the vassal owe allegiance to the lord. Likewise, in the feudalistic family, the children owe allegiance to the parent only by virtue of the parent's bestowal upon them of benevolence.

The principle of patriarchal authority and the principle of feudal obedience are two different "types" of relations. The former is the relationship of servants unconditionally devoted to the ruler, or *Herr*, and the power and protection which maintain his authority is based upon a conception of unconditional, absolute piety or *Pietät*. On the other hand, the latter [feudal] is a relationship between comparatively independent actors. There exists a relationship of conflict, or a relationship of tension between powers in spite of tendencies toward dominance-submission relations between them. The norm which guarantees the continuity of ruling authority and power is loyalty, or *Treue* conditioned by *on*, or specific obligation [in the Japanese family] (p. 105).

Kawashima then turns to a comparison of the Japanese family system with the ideal-typical feudal family as represented by medieval England. When this comparison is made, the Japanese system is seen to be *less* "feudal" than it appeared above in the comparison with the Chinese Confucian patriarchal type. It appears that the functional effectiveness of *on* in conditioning or mediating *ko* was in actuality weak, at least in the Tokugawa (feudal) period, and especially in the upper classes. The absolute-obedience factor of the Chinese Confucian system tended to be quite strong, particularly among the *samurai*. Comparing it to the medieval English family system,

In the medieval British family code, there is no concept of "family" which covers all relations between family members. Family relationships of coöperation were divided into parent-child and husband-wife sets. The implication is that between these people, the categories of normative relations of free actors—that is, rights and duties—prevailed. And each of these two sets of relationships were characterized by norms similar to those defined for parties in feudal [lord-vassal] relations. Only such norms of family relations deserve the clear designation of "feudal" (p. 112).

While in Japan, although some conception and practice of "feudal" rights and duties are found to be characteristic of the family system, there is very strong normative emphasis, at least in the feudal ruling class and its descendants, on absolute, unconditional *ko*, or filial piety. The Japanese family system thus stands somewhat midway between the Confucian and the feudal types.

Kawashima next asks why this semi-feudal character of the Japanese family should have become typical of Japan, especially during the late Tokugawa era. He advances two hypotheses:

1. In the *Nijushiko* ("The Twenty-Four *Ko*"),[7] a volume of moral precepts published in the Tokugawa period, one finds a series of stories or paragons of parent-child relationships which have as their general moral point the absolute obedience or piety due the parents by the child; that is, an adaptation of the old Confucian ethic. This book appeared in the Kyoho period (1716-1736) when the Tokugawa government was experiencing considerable difficulty in solving severe internal economic and political problems. The formula habitually adopted by Tokugawa rulers for curing all types of troubles was insistence upon conformity to existing social and moral codes and rigid enforcement of dominant-submissive relationships in general. Thus it is possible that insistence on such relationships in the family environment was a reflection of anxiety on the part of Tokugawa rulers over problems of political and economic dissension and unrest. Thus the Confucian emphasis in the family system may have been in part, and originally, a *means to an end,* namely, the maintenance of the Tokugawa feudal status quo.

2. Kawashima turns to Max Weber for help in his second hypothesis. According to Weber,[8] Japanese feudalism is atypical in that the apportionment of land as a basis for structuring rights and duties was *not* universal for all statuses in the system. Thus, the *Fudai Daimyo* (lords loyal to the Tokugawa) were typically *Amt* (bureaucratic status), not *Lehen* (feudal vassalship based on land allocation). That is, many of the lords were officials in a patrimonial bureaucracy rather than fief-holders. The same was true for large segments of the *samurai* category. Since substantial proportions of the feudal population were thus essentially dependent upon others *in toto,* dominant-submissive relationships were more easily established.

> Accordingly, Tokugawa feudalism was on the whole patrimonial, and the consciousness which maintained political ties belongs to the same category as that to which patriarchal piety belongs (p. 124).

How Kawashima apportions these tendencies to classes and groups in Japanese societies will be seen later.

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7 See Basil Hall Chamberlain, *Things Japanese* (5th ed., London, 1905), pp. 165-166, for a summary.

8 Weber, *op. cit.*, pp. 377-381 ("patrimonialism").

Kawashima uses "patrimonial" in the sense of Talcott Parsons and Max Weber (Weber, *op. cit.*, pp. 346-354); that is, as a form of "traditional authority" in which the lord or leader has a group of retainers who, though owing him respect and obedience similar to that found in the "patriarchal" or familial type of "traditional authority," differ from the latter in that they are salaried officials or bureaucrats rather than sons or relatives. Such a "patrimonial" system contains potentialities for change in status and economic relationships different from those found in "patriarchal" systems.

THE JAPANESE FAMILY AND THE AMERICAN "CONJUGAL" TYPE

Kawashima compares the "feudal" aspect of the Japanese family system with the ideal American type of "conjugal" system. As has been noted, in the feudal family, *ko* to parents is conditioned or mediated by *on*; that is, there is defined a distinct sense of particularistic *obligations* to parents, given in return for favors bestowed. Kawashima points out that from the standpoint of "American" values, this relationship has many "commercial" features. On the other hand, love and respect in the American family is *unconditional*—it is spontaneous, and based on the "free will of the actors"; that is, it is highly situational. Therefore, to Ruth Benedict (Kawashima suggests), the relationship of parent to child in Japan resembled the payment of a debt. Kawashima tends to agree with this formulation as far as it goes, but feels that the relationships between parents and children imply considerably more than mere debt-payment, involving many other rights and duties and normative sanctions.[9]

However, this "unconditional love" for parents in the American family must be distinguished from unconditional piety to the patriarch in the ideal Confucian system, or in its Japanese version. The latter type of sentiment—piety—is sanctioned by "outside compulsion"; that is, it becomes a part of the official social order and permeates all institutional relations, whereas unconditional love in the American family is spontaneous, is a part of the individual family situation, and does not form part of the formal institutional structure of the society as a whole. It is not "enforced" by the society (although, of course, it is given widespread informal public approval).

> . . . Modern morals can maintain their spiritual value only when they are observed voluntarily. Therefore, the imposition of morals by external power should be exceptional. . . . It is suicidal for morals to be made legally compulsory. This is particularly true for family relations, which occupy the highest place in the moral world. The reason why generally only a small portion of family moral precepts are codified and written down is that family morals are taken seriously, not that they are neglected (pp. 130-131).

9 At this point it might be important to compare Kawashima's handling of *ko* and *on* with Benedict's. Kawashima clearly sees *ko* in terms of absolute submission of one party, the child, to another, the parent. Any moderating tendency emerges with *on*, which introduces a conception of rights and duties for *both* sides. Benedict's analysis is not explicitly opposed to this, but it can be said that she does not present *ko* in *any* context in an absolutist manner; that is, she does not stress its existence in the *samurai* family as a patriarchal, dominance-submission tendency. She *always sees ko* as mediated by *on;* consequently she can state, "Filial piety [*ko*] enjoins all the numerous responsibilities which rest upon the head of a family to provide for his children, educate his sons" . . . (Benedict, *op. cit.*, p. 122). Kawashima would say that this is true only when *ko* is "conditioned" by *on*; it is not inherent in *ko* as such.

Thus, the "American" family system differs from the Japanese type in that: (a) it lacks the "payment of debt" feature based on *on*; and (b) the love and respect due parents differs from Confucian *ko* tendencies in being spontaneous and situationally-determined.

THE MODERN JAPANESE FAMILY

Professor Kawashima feels that in modern Japan one finds two types of the "family system." The first contains the Confucian, dominance-submission emphasis which persists in the upper and ruling class families of *samurai* descent. The second displays the feudal, give-and-take emphasis as found in the families of *heimin* ("common people") Japanese. He refers to these as the *samurai* and *heimin* types:

> The family system as it is prescribed in the old Family Code is a part of the family system of the *samurai* class, and it must be said that the *samurai* family system is a functioning part of the family institutions of our society. . . . Wherever the adjective "beautiful" has been used in describing the Japanese family system, it has been applied to aspects of this *samurai* family system, which partakes of the Confucian theory of patriarchal authority (p. 5).

> In this [*samurai*] family system, the relationship between parent and child, and between husband and wife, is a relationship of one-sided dominance and submission, of the one side having only powers, and the other side merely duties. It is not a reciprocal relationship in which both sides have "rights" and "duties" toward each other (p. 10).

But this must be contrasted with the relations which prevail in the families of the "common people." Kawashima exemplifies these with a typical farm family:

> Let us consider a typical farm family. In this family, every member, including the women, children, and the aged, participate in the productive labor of the farm enterprise according to the ability of each. No one, unless he is physically incompetent, is totally dependent on the property of the patriarch. That sort of thing is simply not permissible. Therefore, the rights and authority of the patriarch in the Confucian family type do not exist here. A much more coöperative atmosphere is the rule, rather than absolute authority and piety. In accordance with the task assigned each member of the family, each member has a unique status, and thus clear differentiation is obtained between the rights and duties of the statuses of family head, husband, father, housewife, and the like. In place of the Confucian hierarchical relations of man's control over man, the coördinate relations of coöperation exist in this type of family (p. 12).

To summarize, Kawashima sees in the modern Japanese family institution the following three tendencies: *first*, the *normative* patterns of the "Japanese family system" in the upper and ruling classes stress the *ko* or absolute piety element,

derived from the old Confucian absolutist system; and, to a certain extent, the actual relationship patterns in the Japanese upper and ruling classes follow this stress. *Secondly,* the family relationships of the "common people" stress the normative *on* factor of mediation of *ko,* and also duplicate this stress in *real* behavior. *Thirdly,* the *official normative family patterns,* as expressed in legal forms, national ideology, and the like, duplicate the *samurai* stress on *ko,* although *on* is included.

"ASIATIC" TENDENCIES IN JAPANESE FEUDALISM AND THEIR IMPLICATIONS FOR JAPANESE KINSHIP RELATIONS

As previously noted, Kawashima sees in Asiatic feudal principles a special emphasis on the master-slave relationship which is largely absent in the European variety. This master-slave relationship becomes formalized in the Confucian ideal patriarchal family system. This has its implications for Japan:

> The fact that Japanese feudalism involves "Asiatic" characteristics [i.e., master-slave relations] has significant implications for us. First, it demonstrates the fact of Japan's failure to carry through her [modern] revolution. . . . Second, these elements of Asiatic feudalism create certain special situations—subjective and objective—in the contemporary social structure. They are as follows: First, on the objective side, they create great complexity in relations between the classes, and great variation in attitudes of different social strata toward the democratic revolution . . . on the subjective side, one finds a problem of persistence of reactionary perspectives (pp. 50-51).

Kawashima presents typical examples of the influence of "Asiatic feudalism" on Japanese social relations in the custom of adoption:

The first example concerns adoption of a child in a "primitive" Japanese fishing village, where the child becomes little more than a slave of the father, who therefore assumes the role of "patriarch" with respect to the child. In this case master-slave relations are simultaneously parent-child relations. The second example concerns the relation of a *geisha* to her boss, or employer-patron, who assumes the role of a fictitious parent. Rarely are *geisha* really adopted children, but they address their boss and his relatives in honorific kinship terms used by a child to parents and parental relatives, and their status is that of indentured slaves. Kawashima stresses the fact that slave-like statuses of this kind, in their fusion with parent-child relations, should not be regarded as "survivals," but are flourishing systems within the modern Japanese social structure.

Kawashima also notes the extension of fictitious parent-child relationship patterns into the economic and political institutional areas of Japanese society. The *oyabun-kobun* system, with its many concrete expressions like the "labor boss"

system is a case in point. The *oyabun* ("parent-status") is the boss or employer, while the *kobun* ("child-status") are the loyal workers or employees. All relatives of the *oyabun* and *kobun* are reciprocally addressed with the proper family kinship terms, and the relations between them are closely similar to those prevailing in real families.[10] In political groupings in Japanese society similar tendencies—that is, relations of dependency, loyalty, and obligation on a reciprocal basis—are also found. In all these cases of "kinship" relations in economic and other institutions, *the patterns of social relations are mixtures of "patriarchal" tendencies with "feudal" ("rights and duties")* aspects. This mixture is the special characteristic of Japanese social structure; what Kawashima stresses is that any system of relations—e.g., employer-employee, teacher-student, parent-child—is likely to show varying tendencies, which are (theoretically) understandable in terms of the various types and patterns presented previously.

CHANGE AND REFORM

Kawashima asks, "How can we change the Japanese family system?" Obviously the full answer to this question must be based upon a thorough understanding of the role of the family in Japanese society, and the social and cultural situations which do or do not perpetuate certain features of the family. Although Kawashima is obviously concerned with an analysis of these variables or factors, the book itself is concerned primarily with theoretical and typological problems. Yet his following statement shows clearly that he conceives economic structure and attitudes as the two most important factors which determine the norms and relations in family life:

> Our problem is to abolish the undemocratic features of the family pattern and its norms, and to bring to realization the democratic way of family living. In order to do this, the following objective conditions must be met: They are, first, the elimination of certain economic factors which are basic in class structure, and which in turn, perpetuate feudal Confucian family tendencies. Especially, it will be necessary to eliminate the static, feudal mode of economic production of the farmers. In short, it is necessary to modernize the system of land tenure and in general establish modern forms of relations in economic production. However, the problem requires more than these objective changes. . . . In addition, the subjective and attitudinal aspects of the democratic revolution must be present. This is a most difficult problem. The democratic revolution in this subjective sense requires Japanese to "negate" many of their attitudes and practices; it requires spiritual and inner "revolution." The present problem of the family system is thus a problem in the "negation" of non-modern attitudes toward the family (pp. 24-25).

10 The Research Project in Japanese Social Relations has published a mimeographed report on the *oyabun-kobun* system.

The foregoing statement by Professor Kawashima may be regarded as typical of contemporary interests and attitudes of Japanese intellectuals in the "family problem." Much of the data, and certainly the objectives of research on the family are selected from this reformist perspective, rather than from intrascientific problems and hypotheses. Family studies are not only interesting to Japanese scholars in the pure academic sense, but are also necessary social activity for progressive Japanese who are concerned with the welfare of their society. Consequently one finds much to criticize, from the scientific standpoint, in contemporary Japanese studies of the family. Many are made hastily, show insufficient conceptualization, and possess inextricable blending of fact and value. At the same time, the fervent interest in family problems is leading to a great quantity of valuable and much-needed research into the importance of kinship as a force in Japanese institutional life.

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